

ANNUAL REPORT 2021-22



Department of Telecommunications
Ministry of Communications
Government of India
New Delhi



CONTENTS

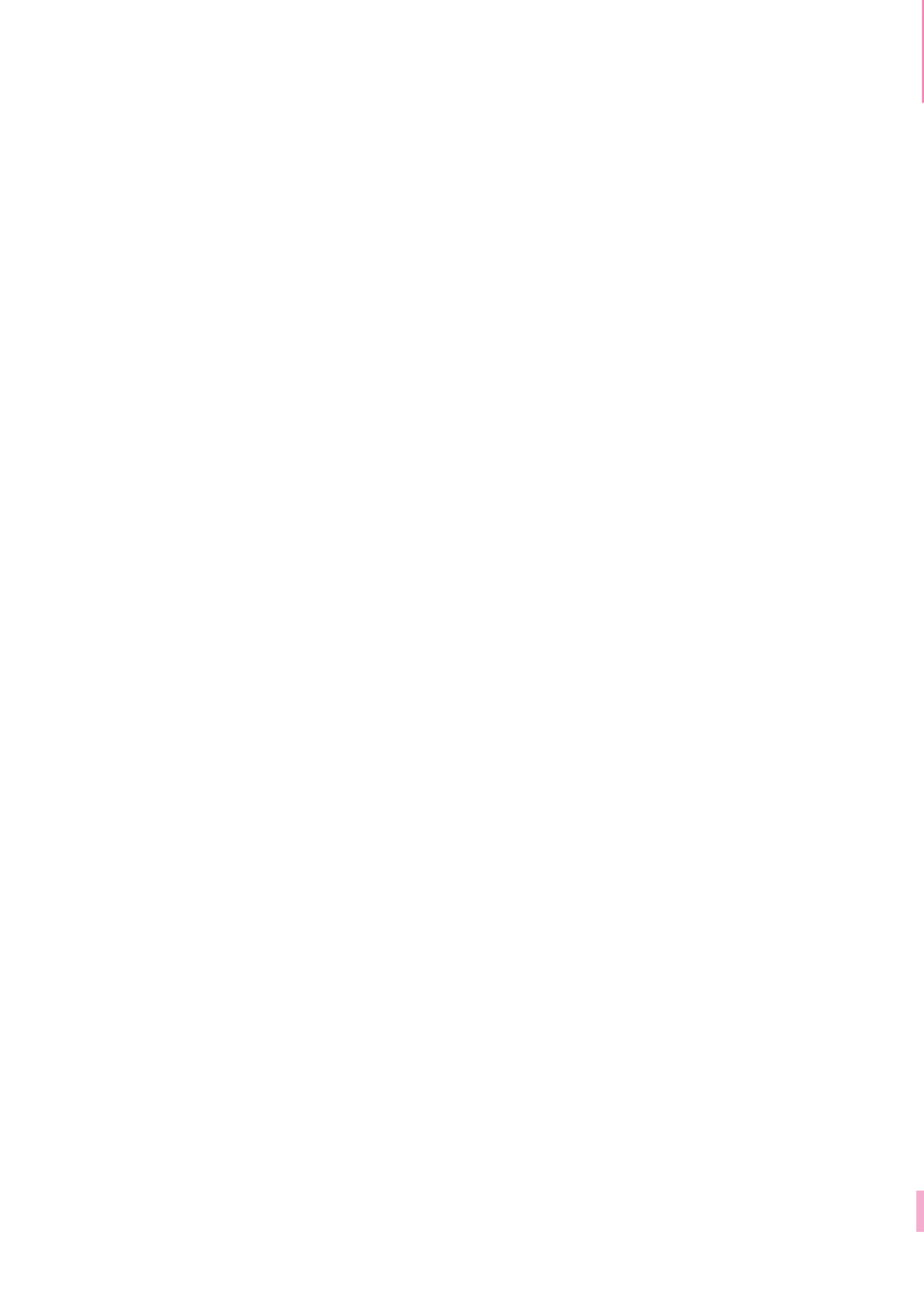
S.No.	Chapter	Pages
1	Department of Telecommunications	3
1.1	Functions of Department	3
1.2	Digital Communications Commission	4
1.3	Organizational Chart	7
1.4	Statutory/ Regulatory Bodies in the Telecom Sector	7
1.5	Attached Subordinate and Field Offices of DoT	7
1.6	PSUs and Autonomous Bodies under DoT	10
2	The Telecom Sector, Reforms and Initiatives	15
2.1	Telecom sector	15
2.2	National Digital Communications Policy – 2018	17
2.3	Initiatives	18
2.4	Telecom Reforms Announced on 15.09.2021	28
2.5	Harnessing Emerging Technologies	29
2.6	India's Ranking in Global Indices	29
2.7	Grant of Licenses	30
2.8	Management of COVID-19	32
2.9	Planning for the Future	33
3	International Relations and Cooperation	39
3.1	International Relations	39
3.2	International Cooperation	45
4	Offices and Field Organisations	53
4.1	Office of Member (Technology)	53
4.2	Office of Member (Services)	54
4.3	Office of Member (Finance)	60
4.4	Director General Telecom (DGT)	73
4.5	Wireless Planning & Coordination (WPC)	81
4.6	Wireless Monitoring Organisation (WMO)	99
4.7	Telecommunication Engineering Centre (TEC)	104
4.8	Universal Service Obligation Fund (USOF)	117
4.9	National Centre for Communication Security (NCCS)	121
4.10	Network Operations Control Centre (NOCC)	122
4.11	Controller General of Communication Accounts (CGCA) Office	124
4.12	Field Offices – Pr. CCAs, CCAs and Jt. CCAs	128
4.13	Building Works Division	130

DEPARTMENT OF TELECOMMUNICATIONS

5	Public Sector Undertakings (PSUs) and Autonomous Bodies	133
5.1	Bharat Sanchar Nigam Ltd.	133
5.2	Mahanagar Telephone Nigam Ltd.	138
5.3	ITI Limited	148
5.4	Telecommunications Consultants India Limited	156
5.5	Bharat Broadband Network Limited	167
5.6	Centre for Development of Telematics	169
6	Regulatory and Appellate bodies	185
6.1	Telecom Regulatory Authority of India	185
6.2	Telecom Disputes Settlement & Appellate Tribunal	194
7	Administration, Training and Swachh Bharat	203
7.1	Right to Information	203
7.2	Public Grievance	204
7.3	Co-ordination and Monitoring of Court Cases of DoT	207
7.4	Citizen Charter	208
7.5	Training & Capacity Building	209
7.6	Staff welfare and Sports	224
7.7	Swachhta Mission	224
7.8	Official language	227
8	Vigilance Wing	233
9	Welfare of Weaker Section, Differently Abled Persons and Women	245
9.1	Welfare of Differently Abled Persons and SC/ST/OBC	245
9.2	Empowerment of Women	251
10	Audit Observations of C & AG	257
11	Annexures	261
	I. Organisation Chart	262
	II. Statistical Supplement	263

Antenna for Inflight





CHAPTER 1

Department of Telecommunications

The Department of Telecommunications (DoT) is, *inter-alia*, responsible for Telecom Policy; Licensing and Coordination matters relating to telegraph, telephones, telecom wireless data; international cooperation in matters connected with telecommunications, promotion of standardization, Research & Development (R&D) in telecommunications; and promotion of private investment in the sector. DoT is also responsible for frequency management in the field of radio communication in close coordination with the international bodies. DoT enforces wireless regulatory measures by monitoring wireless transmission of all users in the country.

1.1 FUNCTIONS OF DEPARTMENT: As per the Second Schedule to the Government of India (Allocation of Business) Rules, 1961, the functions of the Department are as under (Box 1.1):

BOX 1.1

- Policy, Licensing and coordination matters relating to Telegraphs, Telephones, Wireless, Data, Fascimile, Telematic services and other like forms of communications.
- International cooperation in matters connected with telecommunications including matters relating to international bodies dealing with telecommunications such as International Telecommunication Union (ITU), its Radio Regulation Board (RRB), Radio Communication Sector (ITU-R), Telecommunication Standardization Sector (ITU-T), Development Sector (ITU-D), International Telecommunication Satellite Organization (INTELSAT), International Mobile Satellite Organization (INMARSAT), Asia Pacific Telecommunication (APT).
- Promotion of standardization, research and development in telecommunications.
- Promotion of private investment in telecommunications.
- Financial assistance for furtherance of research and study in telecommunications technology and building up adequately trained manpower for telecom program, including-
 - assistance to institutions, assistance to scientific institutions and universities for advanced scientific study and research; and
 - grant of scholarships to students in educational institutions and other forms of financial aid to individuals including those going abroad for studies in the field of telecommunications.
- Procurement of Stores and equipment required by the Department of Telecommunications.

- Digital Communications Commission (DCC), Telecom Regulatory Authority of India (TRAI) and Telecom Disputes Settlement and Appellate Tribunal (TDSAT).
- Administration of laws with respect to any of the matters specified in this list, namely:
 - The Indian Telegraph Act, 1885 (13 of 1885);
 - The Indian Wireless Telegraphy Act, 1933 (17 of 1933); and (c) The Telecom Regulatory Authority of India Act, 1997 (24 of 1997).
- Post disinvestment matters relating to M/s Hindustan Teleprinters Limited.
- Matters relating to Indian Telephone Industries (ITI Ltd), Bharat Sanchar Nigam Limited (BSNL), Mahanagar Telephone Nigam Limited (MTNL) and Bharat Broadband Network Limited (BBNL)
- Tata Communications Limited(TCL) and Telecommunications Consultants (India) Limited
- All matters relating to Centre for Development of Telematics (C-DOT).
- Residual work relating to erstwhile Department of Telecom Services and Department of Telecom Operations, including matters relating to-
 - Cadre control functions of Group 'A' and other categories of personnel till their absorption in Bharat Sanchar Nigam Limited;
 - Administration and payment of terminal benefits.
- Execution of works, purchase and acquisition of land debitible to the capital Budget pertaining to telecommunications.

1.2 DIGITAL COMMUNICATIONS COMMISSION (DCC)

The Telecom Commission was set up by the Government of India vide Resolution dated 11th April, 1989 with administrative and financial powers of the Government of India to deal with various aspects of Telecommunications. The Government, vide Resolution dated 22nd October, 2018, has re-designated the 'Telecom Commission' as the 'Digital Communications Commission'.

The Digital Communications Commission consists of a chairman, four full time members, who are ex-officio Secretaries to the Government of India in the Department of Telecommunications and four part time members who are the Secretaries to the Government of India in the concerned Departments. The Secretary to the Government of India in the Department of Telecommunications is the ex-officio Chairman of the Digital Communications Commission. The full-time Members of the Digital Communications Commission are Member (Finance), Member (Services), Member (Production) & Member (Technology). The post of Member (Production) is vacant. The part-time Members of the Digital Communications Commission are Chief Executive Officer, NITI (National Institution for Transforming India) Aayog, Secretary (Department of Economic Affairs), Secretary (Ministry of Electronics & Information Technology) and Secretary (Department for Promotion of Industry and Internal Trade).

The Digital Communications Commission is responsible for:

- a) formulating the policy of Department of Telecommunications for approval of the Government;
- b) preparing the budget for the Department of Telecommunications for each financial year and getting it approved by the Government; &
- c) Implementation of Government's policy in all matters concerning telecommunication.

The Chairperson, in his/her capacity as Secretary to the Government of India in the Department of Telecommunications is responsible for arriving at decisions on technical questions and advising the Government on policy and allied matters of telecommunications.

The Chairperson and the Members of the Commission, at present, are as under:

Composition of Digital Communication Commission	
Chairperson (Ex-officio)	Secretary (Telecommunications)
Members (Full time)	Member (Finance)
	Member (Services)
	Member (Technology)
Members (Part time)	Chief Executive Officer, NITI Aayog
	Secretary, Department of Economic Affairs
	Secretary, Ministry of Electronics & Information Technology
	Secretary, Department for Promotion of Industry and Internal Trade

1.2.1 Major decisions taken by the Digital Communications Commission

The Digital Communications Commission approved: -

- (i) The recommendations of Experimental Spectrum Committee to establish/facilitate "Spectrum Regulatory Sandbox" or 'WiTe Zones (Wireless Test Zones)'. This will enable R&D and Make in India in wireless products and help in realizing the objectives of the National Digital Communications Policy, 2018 (NDCP-2018).
- (ii) The following in relation to recommendations of the Telecom Regulatory Authority of India (TRAI) regarding "Traffic Management Practices (TMPs) and Multi-Stakeholder Body (MSB) for Net Neutrality":
 - No need to establish a multi-stakeholder body (MSB).
 - Task of formulating TMPs may be assigned to Telecommunication Engineering Centre (TEC), which may do so in consultation with TSPs (Telecom Service Providers), ISPs (Internet Service Providers) and other stakeholders.
 - The list of TMPs to be updated regularly by TEC.

- (iii) The proposal for enhancement of bandwidth in Lakshadweep Islands from 1.71 Gbps to 3.46 Gbps (augmentation by 1.75 Gbps) by M/s New Space India Limited (NSIL), a Government of India Company under Department of Space (DoS) and BSNL, at an estimated CAPEX of Rs 30.75 crore (excluding taxes) to be funded by the Universal Service Obligation Fund (USOF) & OPEX of Rs. 98.75 crore per annum (excluding taxes) for a period of 5 years to be provided by Ministry of Home Affairs. The augmentation work to be completed within 12 months from the award of work.
- (iv) Request for Proposal (RFP) and draft Concession Agreement (CA) for the implementation of BharatNet in 16 States by Public Private Partnership (PPP) mode.
- (v) Two recommendations made by TRAI on “Spectrum Usage Charges and Presumptive Gross Revenue for Internet Service Providers and Commercial Very Small Aperture Terminal Service Providers” and “Provision of Cellular Backhaul Connectivity via Satellite through Very Small Aperture Terminal under Commercial Very Small Aperture Terminal (VSAT) CUG Service Authorization. The main features of these are:
- VSAT CUG Service provider permitted to provide backhaul connectivity for cellular mobile services through satellite and establish Wi-fi hotspots using VSAT terminal located in the service area of the Access Service Providers. The VSAT terminal can be located anywhere in the country
 - Enabling provisions of backhaul connectivity to be made in stand-alone Commercial VSAT CUG Service License, Unified License and Unified License (Virtual Network Operators).
 - Licensee having license for both Commercial VSAT CUG Service and National Long Distance (NLD) Service to share VSAT Hub for the purpose of providing authorized services
 - Sharing of active and passive infrastructure owned by a licensee for providing other authorized services.
 - Enabling shared use of Gateway hub by satellite provider having a commercial license with the satellite bandwidth seeker.
 - Network Operation & Control Centre (NOCC) charges to be rationalized and made independent of the numbers of carriers assigned.
- (vi) Award of tender for Submarine OFC connectivity between Kochi with the Lakshadweep Islands (KLI Project) to M/s NECCIPL for CAPEX of Rs 652.79 crores and OPEX of Rs. 21.59 Crore. Subsequently, BSNL has issued purchase order to M/s NECCIPL on 28.09.2021.
- (vii) The features of Pandit Deendayal Upadhyaya Telecom Skill Excellence Awards were modified by reduction in the total number of awards from 8 to 5 and enhancing award amount to Rs. 2 Lakhs each in place of one 1st prize of Rs. 50,000, two 2nd prizes of Rs. 30,000 and five 3rd prizes of Rs. 20,000 each.

- (viii) In-principle approval for inclusion of Goa and Uttarakhand under Public Private Partnership (PPP) model of BharatNet subject to approval of PPP-AC and the Cabinet, before the award of the contract.

1.3 ORGANIZATIONAL CHART

The Organization chart of the Department of Telecommunications (DoT) is at **Annexure-I**.

1.4 STATUTORY / REGULATORY BODIES IN THE TELECOM SECTOR

The Telecom Regulatory Authority of India (TRAI) is a statutory body. It is the sector regulator and plays a pivotal role in development of the telecom, broadcasting and cable services. It has worked towards providing a fair and transparent environment which encourages competition and level-playing field for service providers and protecting the interest of consumers and enabling technological advancement. The Telecom Disputes Settlement & Appellate Tribunal (TDSAT) performs the role of an appellate body. The details of their functioning are given in Chapter 6.

1.5 ATTACHED, SUBORDINATE AND FIELD OFFICES OF DOT

The DoT has four attached offices: (i) Universal Service Obligation Fund (USOF); (ii) Telecommunication Engineering Centre (TEC); (iii) Director General Telecom; and (iv) Controller General of Communication Accounts (CGCA).

The DoT has four subordinate offices, namely, (i) the Wireless Monitoring Organisation (WMO) (which functions under the Wireless Planning and Coordination wing of DoT); (ii) the National Telecommunications Institute for Policy Research, Innovation & Training (NTIPRIT); (iii) the National Centre for Communication Security (NCCS) and (iv) the National Institute of Communication Finance (NICF). The Department also performs certain regulatory and enforcement functions in the domain of satellite communications through its Network Operations Control Center (NOCC).

There are 36 DoT Field Units in all the 22 Licensed Service Areas (LSAs) located across the country, which are under the administrative control of the Director General Telecom. There are 28 Controller of Communication Accounts (CCAs) offices located across the country, which are under the control of the CGCA.

The functions of these offices are given in the following paragraphs, in brief ¹.

Universal Service Obligation Fund (USOF): USOF, formed by an Act of Parliament, was established w.e.f. 01.04.2002 under the Indian Telegraph (Amendment) Act, 2003 (further amended in 2006), to provide financial support for the provision of telecom services in commercially unviable rural and remote areas of the country. It is an attached office of the DoT, and is headed by the Administrator, USOF, appointed by the Central Government.

The resources for implementation of USO are raised by way of collecting a Universal Service Levy (USL), which is 5% of the Adjusted Gross Revenue (AGR) of TSPs. It is a non-lapsable Fund. Levy amount is credited to the Consolidated Fund of India. Fund is made available to USOF after due appropriation by the Parliament

¹ Further details on attached, subordinate and field organisations are in Chapters 4 & 7.

The USOF was established with the fundamental objective of providing access to 'basic' telecom services to people in the rural and remote areas at affordable and reasonable prices. Subsequently, the scope was widened to provide subsidy support for enabling access to all types of telecom services, including mobile services, broadband connectivity and creation of infrastructure like Optical Fiber Cable (OFC) in rural and remote areas

Telecommunication Engineering Centre (TEC): TEC is an attached office of and technical arm of the Department, primarily responsible for standardisation, testing, certification in telecom and related IT domain, apart from advising Government in technological matters. Standardization activities are carried out through various specialised divisions such as Mobile Technology, Radio Communications, Future Networks, Telecom Security, Internet of Things, Next Generation Switching, Information Technology, Transmission, Fixed Access, Telecom Certification, Standardisation, Indigenous manufacturing Promotion and TBT Enquiry Point, Conformity Assessment, Lab Divisions, etc. In addition four Regional Centres at Delhi, Mumbai, Bengaluru and Kolkata are responsible for testing and certification activities for conformance to the Standards/specifications.

Director General Telecom (DGT): The DGT is an attached office of DoT and headed by an Apex level officer. The post of DGT was created with the objective of monitoring and controlling the Department's LSA field units in all the 22 LSAs located across the country. Headquarters of Director General Telecom (DGT-HQ) is located in Delhi.

At present, there are 36 LSA field units located across the country. The LSA officers represent the licensing/ telegraph authority in the field. The LSA field units play an important role as an interface between the State Government and DoT for activities such as Right of Way issues, Smart City coordination, IPv6 implementation, improving the coverage in uncovered areas, etc., The LSA field units' also function as an interface between Law Enforcement Agencies and the TSPs in the matters related to National Security. In addition to the above, the LSA field units play a crucial role in implementation of time synchronisation across the telecom network, inspection of USOF funded sites, National Broadband Mission to provide each and every household with broadband connectivity, using telecom analytics for protecting consumers from Cyber Frauds, etc.

Controller General of Communication Accounts Offices (CGCA): The office of CGCA is an attached office of the DoT and is headed by an apex level officer. The office of CGCA presently functions from the NICF Campus at Ghitorni, New Delhi. CGCA has been tasked to supervise the functioning of Controller of Communication Accounts (CCAs). There are 28 CCAs offices located across the country.

The Principal CCA/CCA offices' play a critical role in providing a professional interface between DoT and its various stakeholders at the ground level on issues such as collection & assessment of license fee and spectrum usage charges, management of USOF, review of USOF activities etc.

Wireless Monitoring Organisation (WMO): WMO performs various functions related to spectrum management such as resolution of harmful interference, monitoring/identification of frequency sub-bands for introduction of new services and/ or for additional allocation to existing services; monitoring for spectrum recovery – unused/ under-used frequency authorizations; inspection of licensed installations, monitoring of space emissions to protect authorized satellite transmissions, etc.

WMO, a field unit of Wireless Planning & Coordination (WPC) Wing, carries out wireless monitoring through 22 Wireless Monitoring Stations, 1 International Satellite Monitoring Earth Station (ISMES), 5 International Monitoring Stations (IMSS) strategically located all over India. WMO is also equipped with 5 Radio Noise Survey Units, which undertake detailed and complicated measurements to aid in the spectrum management activity. The Headquarter of WMO is situated in New Delhi. It also has four Regional Headquarters (RHQs) at New Delhi, Mumbai, Kolkata and Chennai. WMO has its own Training Facility at Wireless Monitoring Training & Development Centre (WMTDC), New Delhi, a nodal agency for conducting training courses for officials and staff of Indian Radio Regulatory Service.

National Telecommunications Institute for Policy Research, Innovation & Training (NTIPRIT): NTIPRIT was established in the year 2010 as National Telecom Academy, the telecom training institute of DoT. Subsequently, in year 2011, the mandate of institute was expanded by bringing into the activities related to policy research and innovations under its ambit and the Institute was rechristened as National Telecommunications Institute for Policy Research, Innovation & Training. The institute is now a Central Training Institute (CTI) enlisted with Department of Personnel & Training (DOPT). NTIPRIT is presently operating from the campus of the Advance Level Telecom Training Centre (ALTTC) of BSNL at Ghaziabad, UP.

National Centre For Communication Security (NCCS): NCCS mandate is to establish and operationalize a framework of telecom security testing and certification within the country. Presently, three verticals under NCCS looking after various facets of telecom security testing and certification viz. Security Assurance Standards (SAS) division, Security Lab Recognition (SLR) division and Security Certification (SC) division. It has headquarters at Bengaluru and is headed by Senior Deputy Director General level officer. The NCCS has become operational as a subordinate office with delegated financial powers and operational budget from the year 2020-21.

In order to make the network more secure and less vulnerable from internal and external threats, Government envisaged a pilot Telecommunication Testing and Security Certification (TTSC) project for testing and validating each network element before its integration with the telecom network. The Security Assurance Standards Facility (SASF) of DoT at Bengaluru is an outcome of this pilot project and is the national facility for the Security Assurance Requirements for Telecom equipment to be inducted into the Indian telecom networks. The TTSC has been renamed as NCCS in 2019 and entrusted with the responsibility to establish and operationalize a framework of telecom security testing and certification within the country. It is equipped with test beds for conducting testing and development of telecom testing procedures in compliance with the Indian Telecom Security Assurance Requirement (ITSAR) for the telecom equipment.

National Institute of Communication Finance (NICF): NICF, established in 2000, is a DoPT recognized Central Training Institute (CTI) under the DoT. NICF has been entrusted with the responsibility of imparting training to Indian Posts & Telecom Accounts and Finance Service (IP&TAFS) Group 'A', 'B' & 'C' cadres, which includes Probationary Training of IP&TAFS Group 'A' officers recruited by the UPSC through Civil Services Examination as well as induction Training of Group 'B' & 'C' cadres apart from organizing and conducting regular national and international seminars and workshops.

Network Operations Control Center (NOCC): NOCC performs the function of online operational control, coordination regulation of space segment usage and monitoring of all the satellite based services like VSAT (Very Small Aperture Terminal) applications, broadcasting, DTH (Direct-To-Home), HITs (Head-end in the Sky), ISP (Internet Service Provider) etc. in India on Indian and foreign satellites; resolving the RF (Radio Frequency) interference, mandatory performance verification testing of antennae of satellite earth stations and DSNG (Digital Satellite News Gathering). NOCC monitors and controls parameters of carrier uplink from 1590 Satellite Earth Stations/ Teleports/DSNG & more than 2,84,000 VSATs. NOCC has endeavored to provide interference free environment to various satellite users in country while providing mandatory clearances within three working days to applicant agencies.

NOCC is headed by an SAG level officer who is assisted by one or more JAG level officers. The offices of NOCC are located in Delhi, Gurugram and Sikandrabad.

1.6 PUBLIC SECTOR UNDERTAKINGS (PSUs) AND AUTONOMOUS BODIES UNDER DoT

There are 5 PSUs under DoT namely Bharat Sanchar Nigam Limited (BSNL), Mahanagar Telephone Nigam Limited (MTNL), ITI Limited (ITI), Telecommunications Consultants India Limited (TCIL) and Bharat Broadband Network Limited (BBNL). The Centre for Development of Telematics (C-DOT) is an autonomous body and is also the R&D arm of the Department. Brief functions of these organizations are given below².

BSNL, fully owned by Government of India, was formed in October 2000. It provides telecom services across the length and breadth of the country excluding Delhi and Mumbai. BSNL is providing all types of telecom services namely telephone services on landline, mobile, broadband, internet, leased circuits and long distance telecom services. Rural telephony is one of the focus areas of BSNL alongwith special emphasis on development of telecommunication facilities in North-Eastern region, tribal areas as well as in the LWE-affected areas.

MTNL, set up in 1986, provides telecommunication facilities in metros viz. - Delhi and Mumbai. MTNL provides fixed-line service in these two Metropolitan Cities. For Cellular services, the company has the license to provide services in Delhi including NCR (towns of Ghaziabad, Faridabad, Noida and Gurgaon) and in Mumbai including Navi Mumbai, Kalyan & Dombivili. At present, 56.25% of the equity is held by Government, and the remaining equity is held by Financial Institutions, Banks, Mutual Funds etc.

ITI Limited (earlier Indian Telephone Industries Ltd) was established in 1948 with the vision of attaining self-reliance in the field of telecommunication needs of the country. The company was set up at Bangalore (Karnataka) with Govt. of India holding majority equity stake in the Company. ITI has its Registered & Corporate Office located at Bangaluru. The Company is a Schedule 'A' CPSE in Light and Medium Engineering Sector.

For manufacture and supply of telecom equipments to the Department, ITI started its operations in Bangalore in 1948, and subsequently manufacturing plants were set up at Srinagar in Jammu and Kashmir; Naini, Rae Bareli and Mankapur in Uttar Pradesh; and Palakkad in Kerala. All the

²Further details on the PSUs and autonomous body are given in chapter 5.

manufacturing plants are accredited with ISO 9001-2015 and ISO 14001-2015 standards.

TCIL was set-up on 10th March, 1978 with the main objective of providing world class technology in all fields of telecommunications and information technology to excel in its operations in overseas and in the domestic markets by developing proper marketing strategies, to acquire state of the art technology on a continuing basis and maintain leadership. It has diversified into Cyber Parks, Intelligent Buildings, Cyber & Smart Cities and upgrading legacy networks by focusing on Broadband Multimedia Convergent Service Networks, entering new areas of IT as systems integrator in Telecom billing customer care value added services; e-governance networks and Telecom fields by utilizing TCIL's expert technical manpower, developing Telecom and IT training infrastructure in countries abroad and aggressively participating in SWAN and IT-education projects in various States.

BBNL, a Special Purpose Vehicle (SPV), was incorporated on February 25, 2012 under the Indian Companies Act, 1956 with an authorized share capital of Rs. 1000 crore. As per the mandate given by the Government of India, BBNL shall set up, provide (i.e. procure, install, test, commission), operate, maintain and manage OFC under the flagship BharatNet programme of the Government.

C-DOT is an autonomous telecom research & development body funded by the DoT. It was established under the Society Registration Act XXI in 1984 to design and develop indigenous switching technology. C-DOT is presently engaged in developing state-of-the-art telecommunication technology to meet the needs of the Indian telecommunication network. It is involved in research and development (R&D) activities as well as in field implementation of technologies developed.



Remote Site Installations





Chapter 2

The Telecom Sector, Reforms and Initiatives

The Telecommunication has been recognized the world-over as a powerful tool of development and poverty reduction through empowerment of masses. It is one of the key element of the Sustainable Development Goals (SDGs) of the United Nations Agenda for Sustainable Development for 2030, reflecting its growing reach, better networks and adoption of tools and solutions that enhance digitisation of systems, processes and interactions across key sectors like agriculture, banking, healthcare, etc. in developing and middle income countries. During the difficult pandemic period, initiatives of the Department ensured seamless connectivity, uninterrupted services, work from home, work from anywhere, and on-line classes to name a few.

2.1 TELECOM SECTOR:

Telecommunications is a network industry in which new users generate positive externalities for existing users by broadening the network. Information is essential to the functioning of any economy and has been intimately associated with positive economic externalities. By decreasing the cost of acquiring information, telecommunications reduce transaction costs, create opportunities for additional transactions, and therefore contribute to economic efficiency and growth. Reducing transaction costs is a major contribution of telecommunication to economic growth of a nation. Information, and the facilities for accessing, processing, and disseminating it in electronic form, have become a strategic resource as important as land, labour and capital.

Higher economic growth places more demand on the existing and newer telecommunications services thereby inducing the development of the sector while the economic growth itself makes the necessary investment resources available. In this context Government of India has played an important role and supported the telecom sector by appropriate and benign policies. Through policy initiatives, the Government has ensured fair competition among service providers, and a fair and proactive regulatory framework has made telecom services affordable and within reach of common person of the country.

With the subscriber base of 1.19 billion, India is currently the world's second-largest country in terms of telephone connections. India's mobile subscriptions now constitute more than 98% of all telephone subscriptions.

Internet is now akin to global information infrastructure. The Government has placed considerable emphasis on internet and broadband in the country as a part of its Digital India campaign. The main medium for internet access is mobile telephony. With extensive reach and affordability, mobile telephony has helped in bringing unconnected sections of population with the network and in the mainstream, thereby reducing the digital divide, which has assumed added significance during the pandemic.

BOX 2.1

Snapshot of status at the end of November, 2021

- Indian telecom network is 2nd largest in the world in terms of telephone connections
- Telephone connections: 1191.03 million
- Wireless telephone connections: 1167.49 million

■ Overall tele-density in the country: 86.89%
■ Urban tele-density: 138.79%
■ Rural tele-density: 59.31%
■ Share of wireless telephones in total telephones: 98.02%
■ The share of private sector in total telephones: 89.35%
■ Number of Broadband connections: 801.61 million

Wire line and Wireless: The landline telephone connections are 23.53 million, while the number of wireless telephone connections stood at 1167.49 million at the end of November'21, constituting 98.02% of all connections.

Public and Private: The private sector is dominant player in the telecom sector. At the end of November'21, the private sector provided 1064.16 million connections where public sector connections were 126.87 million. The share of private sector in the total number of connections was 89.35% at the end of November '21.

Telecom Development Indicators

Sl. No	Item	At the end of				
		March'20	March'21	November'20	November'21	
1	Number of Telephones (In million)	Overall	1176.79	1200.88	1175.22	1191.03
2		Wire line	19.13	20.24	20.07	23.53
3		Wireless	1157.66	1180.64	1155.15	1167.49
4		Rural	521.25	537.11	526.40	530.81
5		Urban	655.54	663.76	648.83	660.22
6	Tele-density (Telephones per 100 persons)	Overall	88.66	88.15	86.55	86.89
7		Rural	57.87	60.17	59.08	59.31
8		Urban	153.68	141.29	139.01	138.79
9	%age share	Wireless	98.37	98.31	98.29	98.02
10		Public	11.47	10.92	11.29	10.65
11		Private	88.53	89.08	88.71	89.35
12	%age growth of Total Telephones over previous year		-0.56	2.05	0.05	1.34

Tele-density: Tele-density, which denotes the number of telephones per 100 population, is an important indicator of telecom penetration. Overall tele-density in India was 86.89% at the end of November'21. While the rural tele-density was 59.31%, it was 138.79% in urban areas. Amongst the Service Areas, Himachal Pradesh (142.49%) had the highest tele-density followed by Kerala (127.98%), Punjab (122.97%), Tamil Nadu (107.08%) and Karnataka (102.89%). On the other hand, tele-density is comparatively low in service areas such as Bihar (53.54%), Uttar Pradesh (68.73%), Assam (69.62%), Madhya Pradesh (69.85%), West Bengal (70.13%), and Odisha

(76.42%). Amongst the metros, Delhi tops in tele-density with 269.57%, followed by Kolkata (148.23%) and Mumbai (145.26%).

Internet and broadband penetration: The number of Internet subscribers (both broadband and narrowband put together), which was 776.45 million at the end of September, 2020 increased to 834.29 million by the end of September, 2021, registering a growth of over 7%. The number of subscribers accessing internet via wireless phones etc. was 809.82 million (97%) at the end of September, 2021, while number of wireline internet subscribers was 24.47 million (3%). The number of Broadband subscribers was 742.07 million at the end of November, 2020, which increased to 801.61 million at the end of November, 2021.

BTS and Towers:

- The number of Mobile Base Transceiver Stations (BTS) increased from 22.56 lakhs as on 1st January 2021 to 23.13 lakhs in 17th January 2022, growing by 2.53%.
- The number of mobile towers increased from 6.38 lakhs as on 1st January 2021 to 6.98 lakh in 17th January 2022, registering the growth of 9.40%.

2.2 NATIONAL DIGITAL COMMUNICATIONS POLICY-2018

The National Digital Communications Policy-2018 (NDCP-2018) was launched by the Government of India in 2018 with a vision to fulfill the information and communication needs of citizens and enterprises through establishment of a ubiquitous, resilient, secure, accessible and affordable Digital Communications Infrastructure and Services. The policy aims to support India's transition to a digitally empowered economy and society. The policy further seeks to unlock the transformative power of digital communications networks for achieving the goal of digital empowerment and improved well-being of the people. The policy has the following three Missions:-

- a Connect India:** - To promote 'Broadband for All' as a tool for socio-economic development, while ensuring service quality and environmental sustainability.
- b Propel India:-**To harness the power of emerging digital technologies, including 5G, AI, IoT, Cloud and Big Data to enable provision of future ready products and services; and to catalyze the fourth industrial revolution (Industry 4.0) by promoting Investments, Innovation and IPR.
- c Secure India:-** To secure the interests of citizens and safeguard the digital sovereignty of India with a focus on ensuring individual autonomy and choice, data ownership, privacy and security; while recognizing data as a crucial economic resource.

The broad strategic objectives of the policy and the status of implementation thereof are as under:-

- (i) Broadband for All:** - The policy recognizes digital communications infrastructure and services as key enablers and critical determinants of India's growth and well-being. One of the objectives of the policy is 'Broadband for All'. In order to fulfill this objective, the Government has launched the National Broadband Mission with a vision to enable fast track growth of digital communications infrastructure, to bridge

the digital divide for digital empowerment and inclusion, and to provide affordable and universal access of broadband for all.

- (ii) **Creating additional jobs in the Digital Communications sector:** Initiatives taken by the Government and Telecom Companies have boosted economic activities such as e-commerce, telecom operations, cable TV operations, etc. in the remote and difficult areas of the country. This has resulted in creating additional job opportunities. Prime Minister's Wi-Fi Access Network Interface (PM-WANI) framework also aims to boost economic activities and create sizeable number of jobs in the country.
- (iii) **Enhancing the contribution of Digital Communications sector to India's GDP:** Digital Communication is playing a central role in driving the larger economic activities in the country. The sector has given a fillip to significantly increase uptake of services in e-Commerce, FinTech, HealthTech, EdTech, AgriTech, UrbanTech, etc. Major services by Government to citizens and Government to businesses are also primarily delivered through the underlying telecommunications, especially in the aftermath of the pandemic. Consumption of these services has led to huge growth of the wireless data consumption in the country. In parallel, average per GB tariff has dropped significantly in recent years.
- (iv) **Enhancing India's contribution to Global Value Chains:** Enhancement of India's contribution to the Global Value Chain is a continuous process. Steps such as liberalizing spectrum licensing norms for experimentation and research; and simplification of import license requirements for domestic Original Equipment Manufacturers (OEMs) etc. have been taken to enable India as a manufacturing hub.
- (v) **Ensuring Digital Sovereignty:-**There are provisions available in the Indian Telegraph Act 1885 and the Indian Telegraph Rules made thereunder to protect secrecy, privacy and confidentiality of communications. Further, appropriate conditions have been incorporated in the Unified Telecom License for protection of privacy and confidentiality of communications over the telecommunications networks. Security testing framework is under the overall framework of Mandatory Testing and Certification of Telecom Equipment (MTCTE). The Government has notified 'National Security Directive on Telecommunication Sector' for identification of trusted source and trusted products for telecom sector.

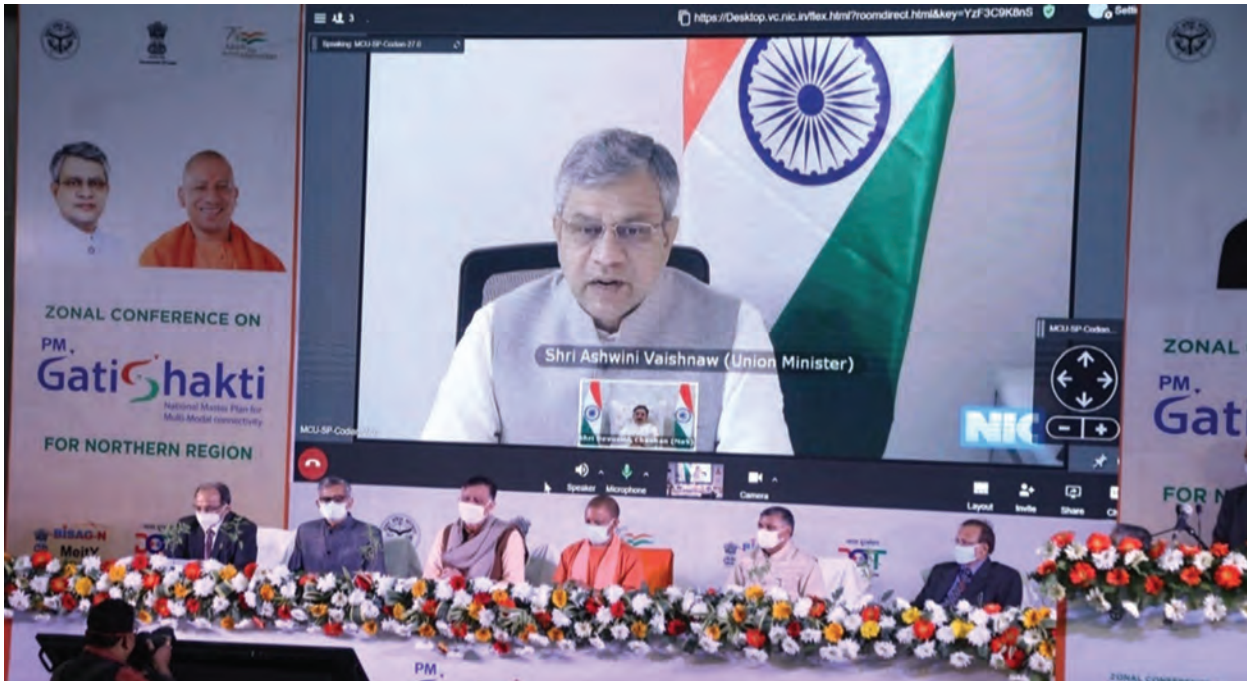
2.3 INITIATIVES

i. **PM Gati Shakti Zonal Conference held in Lucknow on 03rd December 2021 organized by Director General Telecom (DGT) unit, DoT**

Licensed Service Area (LSA) unit of DGT and UP State Government jointly organized a North Region Zonal Conference on PM Gati Shakti at Lucknow, Uttar Pradesh on 3rd December 2021. The conference was addressed by Hon'ble Minister of Communications Shri Ashwini Vaishnav, Hon'ble Chief Minister of Uttar Pradesh Shri Yogi Adityanath, Hon'ble Minister Industrial Development Shri Satish Mahana, and Hon'ble Minister of State for

Communications Shri Devusinh Chauhan where they spoke on how the PM Gati Shakti Master Plan will facilitate better and effective coordination among all the stakeholders.

This conference was second of the six such zonal conferences that are scheduled to be held, the first one was conducted in Gandhinagar, Gujarat. These zonal conferences are meant to sensitize States and other stakeholders from the industry regarding the scheme.



Shri Ashwini Vaishnav, Hon'ble Minister of Communications, in the North Region Zonal Conference on PM Gati Shakti at Lucknow, Uttar Pradesh on 3rd December 2021



Shri Devusinh Chauhan Hon'ble Minister of State for Communications, in the North Region Zonal Conference on PM Gati Shakti at Lucknow, Uttar Pradesh on 3rd December 2021

ii. National Broadband Mission

Digital Connectivity is a key factor for holistic growth across sectors. Enabling Broadband connectivity across the country is essential to bridge the Digital divide between rural-urban and rich-poor and to promote e-governance, transparency, financial inclusion and ease of doing business. It leads to socio-economic development of citizens. For India, the connectivity is the key requirement across all infrastructure sectors. The NDCP – 2018 recognizes digital communications infrastructure and services as key enablers and critical determinants of India's growth and well-being. One of the objectives of the policy is to provide 'Broadband for All'. The policy aims to empower citizens by effectively bridging the digital divide. Accordingly, in order to operationalize 'Broadband for All', the 'National Broadband Mission' was launched by the Government on 17th December, 2019 with a vision to enable fast track growth of digital communications infrastructure, to bridge the digital divide for digital empowerment and inclusion, and to provide affordable and universal access of broadband for all.

The National Broadband Mission aims to -

- a) facilitate universal and equitable access to broadband services for growth and development throughout the country and especially in rural and remote areas;
- b) address policy and regulatory changes required to accelerate the expansion and creation of digital infrastructure and services;
- c) create a digital fiber map of the Digital Communications network and infrastructure, including Optical Fiber Cables (OFC) and Towers, across the country;
- d) work with all stakeholders including the concerned Ministries/ Departments/ Agencies, and Ministry of Finance, for enabling investments for the Mission;
- e) work with the Department of Space, to make available adequate resources required for extending connectivity to far flung areas of country through satellite media;
- f) encourage and promote adoption of innovative technologies for proliferation of broadband especially by the domestic industry;
- g) seek cooperation from concerned stakeholders by developing innovative implementation models for Right of Way (RoW);
- h) work with States/UTs for having consistent policies pertaining to expansion of digital infrastructure including for RoW approvals required for laying of OFC;
- i) develop a Broadband Readiness Index (BRI) to measure the availability of digital communications infrastructure and conducive policy ecosystem within a State/UT; and
- j) promote direct and indirect employment as a result of development of Digital Communications infrastructure across the country and through the digital economy.

The key deliverables and outcomes of the Mission are providing all villages with high speed broadband, accelerating fiberization, enhancing connectivity, and improving Quality of Service by increasing tower density and tower fiberization, mapping of fiber, facilitating rollout of 5G network and strengthening of 4G network and promoting Make in India.

Achievements made so far under the Mission are as under: -

- (a) 31 States/Union Territories have so far largely aligned their RoW Policy with Indian Telegraph RoW Rules, 2016. Remaining States/UTs are being pursued for the requisite alignment.
- (b) The “Governing Council for Broadband” and the “Broadband Steering Committee” have been formed for effective implementation of the Mission. All States/UTs have formed their State Broadband Committee for proliferation of broadband in the States/UTs.
- (c) BharatNet project is being implemented to provide broadband connectivity to all 6 lakh villages of the country. Under this project, so far, around 5.60 lakh Kms OFC has been laid and around 1.73 lakh Gram Panchayats, including BHQs, have been made service ready. Wi-Fi hotspots have been installed in around 1.04 Lakh Gram Panchayats and there are 1.95 Lakh FTTH connections provided.
- (d) Prime Minister Wireless Access Network Interface (PM-WANI) scheme has been launched for proliferation of Broadband across the country.
- (e) Around 98% of the population of India has been provided with 3G/4G mobile network coverage.
- (f) More than 6.95 lakh mobile towers have been installed across the country.
- (g) Submarine OFC connectivity between Chennai and Andaman & Nicobar Islands has been commissioned to provide enhanced telecom connectivity to the Andaman & Nicobar Islands.

iii. Reducing compliance burden: With an aim to achieve Ease of Living and Ease of Doing Business, Government launched an ambitious campaign to reduce compliance burden by simplifying Government to Citizen and Government to Business interfaces.

Department of Telecommunications has also actively participated in the said exercise. Department had identified 101 compliances to remove/reduce compliance burden, out of which 74 (Phase I: 14 and Phase II: 60) have been complied with/reduced. The work of reducing remaining compliances is being undertaken in mission mode and are expected to be completed at the earliest with the launch of Saral Sanchar Phase II portal.

Some of the key initiatives undertaken by the Department during the exercise are as under:

- Encouraging BPO/BPM services by reducing cost of doing business and removed the distinction between domestic Other Service Providers (OSPs) and international OSP allowing Indian TSP's serving foreign counterparts to register as an OSP.
- Introduced Saral Sanchar Portal as one stop shop for issuing telecom licenses and registration certificates, eliminating physical visits to the Department by applicants.

iv. Public Procurement (Preference to Make in India) Order, 2017:

The Preference to Make in India (PMI) policy is an important tool to leverage large domestic market to nurture domestic companies. In line with the Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade, the Department of Telecommunications (DoT) has notified on the 29th August, 2018 the Public Procurement (Preference to Make in India) Order, 2017 for telecom products, services and works for telecom sector. The manufacturers and the suppliers of 36 notified telecom products, works and services are given preference in procurement by the procuring entities for a specified percentage of the procurement order, subject to the local suppliers satisfying the local content criteria. The PMI policy is making available the market access to the domestic companies and the huge domestic market is enabling them scaling up their production and also being competitive.

v. Indian Telegraph Right of Way (RoW) Rules, 2016:

In exercise of the powers conferred by the Indian Telegraph Act 1885, the Government notified the Indian Telegraph Right of Way Rules 2016 on 15th November, 2016 to address the difficulties being faced by the Telecom Companies in creation of telecom infrastructure on account of multiple RoW related issues and to ensure seamless establishment of a robust telegraph infrastructure across the country. These rules govern the RoW related procedures for establishment of telegraph infrastructure and include, inter-alia, provisions for electronic application process, uniform administrative fee for RoW permissions, compensation for usage of immovable property in case of establishment of overground telegraph infrastructure, restoration fees, deemed approval and dispute resolution mechanism etc.

All States/Union Territories and the concerned Central Government Ministries/Departments/Agencies have been continuously pursued to align their Right of Way policies with the Indian Telegraph Right of Way Rules 2016. As a result, till date, 31 States/Union Territories have notified their RoW policies which are largely aligned with Indian Telegraph Right of Way Rules 2016. Remaining 5 States/ Union Territories are being pursued for the required alignment.

The Indian Telegraph Right of Way Rules have been further amended in 2021 to incorporate, inter-alia, the provisions related to fee and procedures for establishment of overground telegraph line.

vi. Prime Minister's Wi-Fi Access Network Interface (PM-WANI):

The Government on 9th December, 2020, to accelerate proliferation of Broadband services through Public Wi-Fi networks in the country, has approved setting up of Public Wi-Fi Networks by Public Data Office Aggregators (PDOAs) and Public Data Offices (PDOs). This framework takes forward the goal of NDCP-2018 of creating a robust digital communications infrastructure across India. Proliferation of Broadband Services through public Wi-Fi networks is a step towards Digital India and consequential benefits thereon. This will encourage technology entrepreneurs to develop and deploy Wi-Fi technology solutions triggering Make in India. This new eco system will also enable new business models for shopkeepers as potential PDOs to provide high speed broadband services. No License Fee for providing broadband services using public Wi-Fi Hotspots will encourage its proliferation and penetration across the length and breadth of the country. Availability and use of broadband will enhance incomes, employment, quality of life, ease of doing business etc. Under

the PM WANI framework, online registrations of PDOAs and App providers began on 07th January 2021.

As on 09th December 2021, a total of 140 PDOAs and 70 App Providers have been issued Registration Certificates by DoT and total number of 50626 Access Points have been deployed by PDOAs.

vii. Champion Service Sector Scheme:

The Government on 28th February, 2018 approved the proposal to give focused attention to 12 identified Champion Services Sectors for promoting their development & realizing potential, particularly from the point of view of promoting export. This umbrella scheme titled 'Champion Services Sector Scheme (CSSS)' is a Central Sector Scheme of the Department of Commerce. 'Communication Services' has been identified as one of these Champion Services Sectors and the Ministry of Communications has been identified as its Nodal Ministry. The mandated concerned nodal Ministries/ Departments are required to finalize their respective Action Plans for their concerned sectors. The Government also approved creation of a dedicated fund of Rs. 5000 crores to enable expeditious approvals for funding, as required, of sectoral initiatives of the identified Champion Services sectors. Accordingly, under CSSS, the DoT has launched following 2 sub-schemes (with total financial outlay of Rs. 150.2 Crores) :

- a) Brand-building of India as Telecom Manufacturing and Services Destination: Participation in important international events and brand building of India thereof, will enhance export of telecom equipments/ services, as well as attract foreign Original Equipment Manufacturer (OEM) and Generic Component players to set up manufacturing base in India.
- b) Setting up of Digital Communication Innovation Square (DCIS): The initiative will also promote indigenous innovation and incubation of future technologies and their deployment/ manufacturing thereof, for the Indian communication services sector

viii. Productivity Linked Incentive (PLI) Scheme:

DoT has notified the PLI Scheme for Telecom and Networking products on 24th February 2021 with an overall financial outlay of Rs. 12,195 crores over 5 years. The objective is to boost domestic manufacturing in the telecom and networking products under Aatam Nirbhar Bharat. The scheme is effective from 1st April, 2021. A total of 31 companies, comprising of 16 MSMEs and 15 Non-MSMEs (8 Domestic and 7 Global companies) have been found eligible and have been given approval on 14th October 2021. As per commitments given by applicants, these 31 applicants are expected to invest Rs. 3345 crore in the next 4 years and generate incremental employment of more than 40,000 people with an expected incremental production of around Rs. 1.82 Lakh crore over the scheme period. The scheme is expected to boost domestic Research and Development of new products on which 15% of the committed investment could be invested.

ix. New Guidelines for Other Service Providers (OSPs): The Department has issued New Guidelines for OSPs on 05th November 2020 and then the Revised Guidelines for OSPs dated 23.06.2021 to further simplify and liberalize the OSP Guidelines. It is expected that the new guidelines

for OSPs will make the Indian IT/ITeS Industry more competitive in the Global market and further boost the Industry. Under the new guidelines,

- No registration certificate & Bank Guarantees required for OSP centres.
- Work From Anywhere (WFA) in India allowed.
- Distinction between Domestic and International OSPs removed & EPABX can be located anywhere in the world.
- Internet at centralised location — may be used by other OSP centres.
- Periodic compliances removed.
- OSPs can locate their EPABX at third Party Data Centres in India and can also use EPABX services of Telecom Service Providers.
- Interconnectivity between all types of OSP centres is permitted.
- Remote Agents can connect directly with Centralised EPABX/ EPABX of the OSP/ EPABX of the customer using any technology including Broadband over wireline/ wireless.
- No restriction for data interconnectivity between any OSP centres of same company or group company or any unrelated company.

Webinars were also organised by DOT on 18th December 2020 and 15th July 2021 to disseminate the information about the New Guidelines for OSPs (dated 05th November 2020) and Revised Guidelines for OSPs (dated 23rd June 2021) to the industry, which was highly appreciated by the industry.

x. Liberalisation of Unified License, Commercial VSAT CUG license and Captive VSAT license:

The Unified License and Commercial VSAT CUG license regime have been liberalized by permitting:

- Backhaul connectivity through satellite using VSAT to Access Service providers for Cellular mobile services and Wi Fi hotspots.
- Sharing of VSAT hub for both Commercial VSAT CUG Service and NLD Service
- Sharing of active and passive infrastructure under any service authorization for providing other authorized services to the same license.
- Sharing of gateway hub for HTS satellites, managed and operated by the satellite provider itself, with the satellite bandwidth seeker.
- The data speed restrictions for different types of satellite based telecom network deployments have been done away with, thereby enabling deployment of faster throughput networks.

- Considering the requirements of ease-of-doing business and keeping in mind the need of Industry, the clearance procedure for satellite networks has been simplified.

Further, for Captive VSAT licensees, the Entry Fee has been halved and simplified license fee provisions for captive licensees. Royalty charge formula has also been rationalized.

xi. Development of Online License Management System of DoT:

A web-based portal, "SARAL SANCHAR" (Simplified Application for Registration and Licenses) for issuing various types of Licenses and Registration Certificates has been developed by the DoT. The portal has helped in reducing the compliance burden on the citizens/applicants and in implementing the Digital India Vision of the Govt. of India. Currently, it handles applications for:

- UL/UL-VNO Licenses
- WPC Licenses- Network and Non-Network Licences, Satellite Licences, AMSL, MMSL, USR, ETA, Import, SACFA, Experimental Licenses
- PM-WANI registrations

Development work is in progress to incorporate the following additional functionalities in the portal:

- End to end process flow,
- Other licenses of DoT,
- Extension of the Portal's functioning to the field units; and
- Inclusion of other associated license life cycle activities like renewal, surrender, cancellation, suspension, etc. from the portal itself.

Further, as identified in the Telecom reforms 2021, necessary amendments in process flows for SACFA, Import, Bank guarantees, revision in FDI limits have also been incorporated in the portal.

xii. Transition to the Next Generation of Internet Protocol:

Internet Protocol addresses, or IP addresses, are a core part of how the Internet operates. The proliferation of new technologies such as 5G, Machine to Machine Communication, Artificial Intelligence, etc. and thrust on digital initiatives by the Government along with the penetration of broadband and internet services, has necessitated large number of Internet Protocol (IP) addresses, beyond the current available pool of IPv4 (IP version 4) addresses. To overcome this shortage, Internet Protocol version 6 (IPv6) was developed, which improves on the addressing capacities of IPv4 by using 128 bits address instead of 32 bits, thereby practically making available almost an infinite pool of IP addresses. IPv6 will provide enabling platform for Internet of Things (IoT)/ M2M Communications.

DoT has been constantly working with all stakeholders including ISPs/ Equipment Manufacturers/ Data Centre providers/ States/ UTs/ Central Ministries/ Departments for smooth transition to IPv6. As a result of these concerted efforts, majority of the service providers in India have become ready to handle IPv6 traffic & offer IPv6 services. The adoption of IPv6 based innovative applications in

areas like smart metering, smart grid, smart building, smart cities etc. will keep improving the quality of life of common citizens

The focussed efforts of DoT has led to the timely adoption of IPv6 and provided the potential for innovative applications in different sectors. As per the Asia Pacific Network Information Centre (APNIC) report as on 8th December, 2021 India stands at 1st position (out of more than 250 countries) with IPv6 capability ratio at 76.82%.

xiii. Procurement of Telecommunication equipment from Trusted Source:

On 16th December 2020, the Government approved a framework for implementation of “National Security Directive on Telecom Sector (NSDTS)”. This directive aims to establish a mechanism for sourcing of telecommunication equipment only from trusted sources to enhance the security of Telecom Networks and to address the national security concerns. Based on the said directive, the DoT issued an amendment in Telecom Licenses on 10th March 2021. National Cyber Security Coordinator (NCSC) is the Designated Authority for notifying the Trusted Sources and the associated Telecommunication Equipment (Trusted Products). With effect from 15th June 2021, TSPs have been directed to connect only Trusted Products in their networks.

xiv. Infrastructure sharing and Public Wi-Fi network:

In accordance to TRAI Recommendation on “Proliferation of Broadband through Public Wi-Fi Networks” to facilitate/ease to telecom internet subscribers for more convenient access of internet services, Department has issued amendment to Unified License (UL) and Unified Access Service (UAS) License agreement for permitting sharing of infrastructure related to Wi-Fi equipment such as Wi-Fi router, Access Points etc. and also, sharing of backhaul.

xv. DoT has issued instructions modifying the dialling pattern by prefixing ‘0’ from all fixed line numbers to cellular mobile numbers from 15th January, 2021. This is being done by providing ‘0’ dialling facility to all fixed line subscribers. There is no change in dialling plan from fixed to fixed, mobile to fixed and mobile to mobile calls. This has freed up sufficient numbering resources and more number of connections can be added in future which will be beneficial to the mobile customers at large. These changes have been done in order to have minimum inconvenience to the subscribers and freeing up essential numbering resources.

xvi. Issuance of various directions to Telecom Service Providers for successful implementation of Single Number Based Emergency Response Support System. Also, coordination with Ministry of Home Affairs, CDAC and TSPs is constantly done for successful implementation of Single Number Based Emergency Response Support System.

xvii. Establishment of Digital Intelligence Unit (DIU):

a) With the objective of strengthening the trust in digital ecosystem, to mitigate the frauds involving telecom resources and to control the harassment of telecom subscribers, a Digital Intelligence Unit at Central level along with Telecom Analytics for Fraud Management and Consumer Protection (TAF COP) at License Service Area (LSA) level is under implementation.

- b) Digital Intelligence Unit will include following modules: -
- Central Telecom Subscriber Database System (CTSDS)
 - Grievance Redressal System named Safe Access of Telecom Resources without Harassment and Infringement (SATHI) System
- c) MNP Fraud Prevention Database System (MFPDS)
- DIU and TAF COP have been approved by Hon'ble Minister of Communications on 23rd June 2021 and are under implementation with C-DoT as implementing agency.

xviii. The transfer of VSAT CUG authorisation under UL from M/s Bharti Airtel Limited to M/s Hughes Communications India Private Limited has been taken on record on 08th November 2021.

xix. Voicemail/Audiotex/Unified Messaging Service:

Till 31st December 2021 the license for Voicemail/Audiotex/Unified Messaging Service was issued for the Service Area of Short Distance Charging Area (SDCA) and under Audiotex technical specifications, Conferencing facility was permitted as an optional additional feature. There was no entry fee or license fee for Voicemail/ Audiotex/ UMS Licensees.

However, a New "Licensing framework for Audio Conferencing/ Audiotex/ Voice Mail Services under Unified License" and amendments in the terms and conditions of the existing standalone license of "Voice Mail Service (VMS)/ Audiotex (ATS)/ Unified Messaging Services (UMS)" has been issued by the department effective from 01st January 2022. As per the Recommendations of TRAI on "Licensing framework for Audio Conferencing/Audiotex/ Voice Mail Services", DoT has decided to make this license a part of the Unified License (UL) by adding a new Chapter for this authorisation. However, the migration from existing license to Unified license will be optional for existing licensees holding VMS/ Audiotex/ UMS license.

Under the New licensing framework:

- a) The license is being made part of "Unified Licence" by adding a new Chapter for the authorisation titled "Audio-conferencing/ Audiotex/ Voice Mail Service".
- b) The Audio Conferencing unit can be connected to both PSTN/Mobile and IP network as per TEC standards.
- c) Dial out facility will be allowed even if using resources of more than one access service provider subject to license conditions.
- d) Point-to-point conferencing has been allowed for providing services to Registered Enterprises in India.
- e) The Service Area for the License under UL is being changed from "SDCA" to "**National level**" i.e. All India level. However, it will remain SDCA for standalone license of **VMS/ Audiotex /UMS**.
- f) The licence fees of the new licensees and existing licensees will be 8% of AGR, which is at par with other licensees of UL.

2.4 TELECOM REFORMS ANNOUNCED ON 15.9.2021

In view of the telecom industry facing financial stress and challenges on issues like liquidity, rationalization of levies, Adjusted Gross Revenue (AGR) and spectrum pricing, the Government has approved a number of structural and process reforms in the Telecom sector:

i. Structural Reforms

- a. Rationalization of AGR: Non-telecom revenue will be excluded on prospective basis from the definition of AGR.
- b. Bank Guarantees (BGs) rationalized: Huge reduction in BG requirements (80%) against License Fee (LF) and other similar levies. No requirements for multiple BGs in different Licensed Service Areas (LSAs) regions in the country. Instead, one BG will be enough.
- c. Interest rates rationalized/ Penalties removed: From 1st October, 2021, delayed payments of License Fee (LF)/Spectrum Usage Charge (SUC) will attract interest rate of SBI's MCLR plus 2% instead of MCLR plus 4%; interest compounded annually instead of monthly; penalty and interest on penalty removed.
- d. For Auctions held henceforth, no BGs will be required to secure instalment payments. Industry has matured and the past practice of BG is no longer required.
- e. Spectrum Tenure: In future Auctions, tenure of spectrum increased from 20 to 30 years.
- f. Surrender of spectrum will be permitted after 10 years for spectrum acquired in the future auctions.
- g. No Spectrum Usage Charge (SUC) for spectrum acquired in future spectrum auctions.
- h. Spectrum sharing encouraged- additional SUC of 0.5% for spectrum sharing removed.
- i. To encourage investment, 100% Foreign Direct Investment (FDI) under automatic route permitted in Telecom Sector. All safeguards will apply.

ii. Procedural Reforms

- j. Auction calendar fixed - Spectrum auctions to be normally held in the last quarter of every financial year.
- k. Ease of doing business promoted - cumbersome requirement of licenses under 1953 Customs Notification for wireless equipment removed. Replaced with self-declaration.
- l. Know Your Customers (KYC) reforms: Self-KYC (App based) permitted. E-KYC rate revised to only One Rupee. Shifting from Prepaid to Post-paid and vice-versa will not require fresh KYC.
- m. Paper Customer Acquisition Forms (CAF) will be replaced by digital storage of data. Nearly 300-400 crore paper CAFs lying in various warehouses of TSPs will not be required. Warehouse audit of CAF will not be required.

- n. Standing Advisory Committee on Radio Frequency Allocation (SACFA) clearance for telecom towers eased. DOT will accept data on a portal based on self-declaration basis. Portals of other Agencies (such as Civil Aviation) will be linked with DOT Portal.

iii. Addressing Liquidity requirements of Telecom Service Providers

The Government approved the following for all the Telecom Service Providers (TSPs):

- o. Moratorium/Deferment of up to four years in annual payments of dues arising out of the AGR judgement, with however, by protecting the Net Present Value (NPV) of the due amounts being protected.
- p. Moratorium/Deferment on due payments of spectrum purchased in past auctions (excluding the auction of 2021) for up to four years with NPV protected at the interest rate stipulated in the respective auctions.
- q. Option to the TSPs to pay the interest amount arising due to the said deferment of payment by way of equity.
- r. At the option of the Government, to convert the due amount pertaining to the said deferred payment by way of equity at the end of the Moratorium/Deferment period.

2.5 HARNESSING EMERGING TECHNOLOGIES

- i. **High Throughput Satellites (HTS):** HTS have the capability of delivering significantly enhanced data rate as compared to conventional satellites. The deployment of HTS in coming times will be instrumental in providing abundant capacity and connectivity to unconnected or sparsely connected regions. Department has issued notifications on 23rd September 2021 and 27th September 2021 which will enable framework for sharing of HTS gateway hubs. The data speed restrictions for different types of satellite-based telecom network deployments have been done away with, thereby enabling deployment of faster throughput networks. The relevant standard has been revised and in line with advancements in technology in this field and will help in realizing the Government's broadband proliferation initiatives.
- ii. **Low Earth Orbit (LEO) satellite** is an emerging satellite technology which offers low latency communication by virtue of low propagation delay. Such new technology satellites may supplement availability of requisite bandwidth that could be utilized for rendering broadband services along with voice communication in difficult terrain and far-flung areas bringing digital inclusion and digital empowerment at par with others to fulfil the vision of government.

2.6 INDIA'S RANKING IN GLOBAL INDICES

- i. **India climbed 21 spots in Network Readiness Index 2021 (released on 2nd December 2021), reached to 67th position:** In a major improvement India jumped 21 rank, from 88 in 2020 to 67th position in 2021, in Network Readiness Index (NRI) which was developed by World Economic Forum in 2002 and now published by

M/s Portulans Institute, Washington. India ranked 3rd among lower middle income countries and 12th among Asia & Pacific countries. The number of countries being evaluated is 130.

The report released on 02nd December 2021 reveals that India not only improved its ranking but also improved NRI score from 41.57 in 2020 to 49.74 in 2021 i.e. 20%.

The report stated, "India is another strong economy in the region and made one of the most notable improvement in NRI 2021 by jumping 21 positions. The aggressive upward movement resulted from better country-wide performance in addition to the introduction to more relevant indicators to the NRI framework. India displayed significant progress across most pillars and sub-pillars, with the technology pillar (49th) as it's best dimension...."

- (ii) **India ranks among top 10 in ITU's Global Cybersecurity Index (GCI) 2020 (release on 29th June 2021):** DoT in consultation with concerned stakeholders of Cybersecurity (such as MeitY, NSCS, MHA etc.) had submitted a detailed and comprehensive response to ITU on this issue. As a result, India has jumped 37 places to be ranked 10th in Global Cybersecurity Index (GCI) 2020 launched by ITU. India is the fourth among Asia-Pacific nations and the ITU's Global Cybersecurity Index (GCI) 2020 rankings demonstrates the country's success and commitment to cybersecurity.

2.7 GRANT OF LICENSES

- (i) **Access Service Providers - Unified Licences - 161 and Unified Licences (VNO) - 346** as on 31st December 2021.

(ii) **Internet and Broadband Services**

Internet and Broadband Services (ISP Authorizations Granted Under Unified License and Unified License (VNO)): -

As on 31st December 2021, 1981 Unified Licences with ISP authorization for various Categories have been issued.

As on 31st December 2021, 489 Unified Licences (VNO) with ISP authorization have been issued.

(iii) **Satellite Services**

Satellite communication is increasingly playing an important and pivotal role in connecting the unconnected areas and bridging the digital divide.

VSAT service Licences are granted on non-exclusive basis for Very Small Aperture Terminal (VSAT) service using INSAT satellite system within the territorial boundaries of India. Under the VSAT licence, the Licensees provide data connectivity within CUG amongst various sites scattered throughout India using VSATs and central hub. There are two categories of VSAT licences:

- a) VSAT CUG service authorization under Unified Licence wherein the licensee company can provide VSAT CUG service to users on commercial basis. As on 31st December, 2021, there are 8 Licences for providing commercial VSAT services. In addition, three VNO licences for commercial VSAT services licences have also been issued.
- b) Captive CUG VSAT Licence wherein the licensee company can set up VSAT network for its internal use only. As on 31st December, 2021, there are 25 captive CUG VSAT networks.

Global Mobile Personal Communication by Satellite (GMPCS): The Licensee may provide all types of mobile services including voice and non-voice messages, data services. DOT has granted a licence under sui-generis category to BSNL for “Provision & operation of Satellite based services using gateway installed in India”. BSNL has installed the Gateway at Ghaziabad and has started giving Global Satellite Phone Service (GSPS) w.e.f. 24th May 2017.

INSAT-MSSR Services: The scope of service is to provide INSAT- Mobile Satellite System Reporting service, which is a one way Satellite based messaging service available through INSAT. The basic nature of this service is to provide a reporting channel via Satellite to the group of people, who by virtue of their nature of work are operating from remote locations without any telecom facilities and need to send short textual message or short data occasionally to a central station.

(iv) Carrier Services

- a. Voicemail/ Audiotex/ Unified Messaging Service.

License for Voicemail/ Audiotex/ Unified Messaging Service is issued for the Service Area of Short Distance Charging Area (SDCA). Under Audiotex technical specifications, Conferencing facility is also permitted as an optional additional feature. Presently, there is no entry fee or license fee for Voicemail/ Audiotex/ UMS Licensees. As on 01st January 2022, there are 67 Licenses issued for providing Voicemail/ Audiotex/ Unified Messaging Service (UMS). These 67 licenses have been issued to 30 companies and is spread across 14 service areas.

- b. Public Mobile Radio Trunking Service (PMRTS)

PMRTS is a two-way land mobile service in which the users communicate among themselves through a pair of Radio frequencies out of a pool in a designated frequency band, assigned to the system. This license is used to provide Public Mobile Radio Trunking Service on commercial basis. PMRTS license comes under Unified license since 01.08.2013 and is being issued for commercial use. Service area for PMRTS is Metro or Circle-wise. As on 01.01 2022, there are 40 PMRTS and 01 PMRTS (VNO) licenses issued to provide PMRTS service in the country.

- c. Captive Mobile Radio Trunking Service (CMRTS)

CMRTS is similar to PMRTS service, and the only difference is that it is used for captive purpose, unlike PMRTS which is used on commercial basis. CMRTS license is not covered under Unified license, and is issued by DoT for Captive use only to the agencies/ companies like police, metro

rail service, mining etc. Service area for CMRTS is Metro/ city/specific area/location. As on 01.01.2022, there are 116 CMRTS licenses issued to provide CMRTS service.

d. Licensing for National Long Distance (NLD) and International Long Distance (ILD) Service:

To introduce free competition, ILD Service and NLD Service were opened for private players in April 2002 and August 2000 respectively. After the introduction of Unified Licensing Regime, the new Licenses to operate NLD & ILD services are being given as authorization under Unified License. Unified License (Virtual Network Operator) [UL (VNO)] regime has also been introduced in 2016, under which NLD & ILD service authorization can be given. As on 01.01.2022, 27 ILD Licenses and 42 NLD Licenses have been issued. Further, 7 NLD service authorisation under UL(VNO) and 4 ILD service authorisation under UL(VNO) have also been issued as on 01.01.2022.

e. Registration Certificate of Infrastructure Provider Category-I (IP-I):

Under IP-I registration, company can provide assets such as Dark Fibres, Right of Way, Duct Space, Tower for the purpose to grant on lease/ rent/ sale basis to the licensees of Telecom Services licensed under Section 4 of Indian Telegraph Act, 1885 on mutually agreed terms and conditions. As on 31st December 2021, 1241 companies have been registered as Infrastructure Provider Category-I.

2.8 MANAGEMENT OF COVID-19

- a.** **Covid-19 Savdhaan System:** During FY 2021-22, the services of “COVID-19 Savdhaan” system based on CAP (Common Alerting Protocol) was used by 12 States & Union Territory authorities to send 31.65 crore COVID-19 pandemic SMSs to the citizens of India in English and 7 regional languages.
- b.** Covid-19 Quarantine Alert System (CQAS) develop by C-DOT has been designed for detecting the quarantine Geo-fence breaches. The software application automatically triggers an email or SMS if any identified corona positive person moves away for their quarantine location. The system would send triggers to the identified monitoring agencies for any potential violations from the quarantined location subject to network availability and triangulation limitations. The CQAS creates a virtual-boundary, commonly known as geo-fence, around the quarantine premises for the targets received from the State governments. The CQAS is assisting the State governments, Local governments and police for ground level enforcement of quarantine. It can prove to be a tech-savvy solution to monitor the movements especially in hotspot areas, without requiring physical presence of enforcement teams in every nook and corner, thereby effectively utilizing the human resources in the fight against covid19 pandemic. CQAS is being used as Oxygen Digital Tracking System (ODTS) to track oxygen carrying vehicles since May 2021. It works based on driver mobile no or M2M sim used in the vehicle. More than 36,000 oxygen carrying vehicles has been tracked through CQAS-OTDS. More than 33,72,000 subscribers have been tracked for quarantine breaches till now and the system has generated 20,53,86,763 Geo-fencing breach alerts from the beginning.

- c. To mitigate the effect of COVID-19, some of the major helpline numbers allocated are:
- (i) Allocation of Short code '1075' to Ministry of Home & family Welfare for managing COVID-19 related public queries.
 - (ii) Allocation of short Code '1100' as helpline number to Government of Madhya Pradesh, Government of Odisha etc. as Chief Minister Helpline to establish the COVID-19 control centre for direct interaction with the citizens of the state.
 - (iii) Allotment of short code '14410' to various State Governments for COVID-19 Tele-medicine solution call centres.
 - (iv) Various Ring back tones were implemented to make aware the citizens of India regarding COVID-19 depending upon requirements from time to time as per directions of Ministry of Health and Family Welfare.
 - (v) Several SMSs were broadcasted regarding COVID-19 to inform the citizens of India about various steps to be taken to protect from COVID pandemic. Instructions were issued to all Telecom Service Providers to make the AAROGYA SETU APP free from all the data charges i.e. no data charge will be incurred for downloading the AAROGYA SETU APP and any subscriber with zero balance can also download the AAROGYA SETU APPLICATION.
 - (vi) Actively coordinated with various Ministries/ Departments during COVID-19 pandemic to allocate different helplines and coordinated with Telecom Service Providers to implement these helplines in faster manner.

2.9 PLANNING FOR THE FUTURE

Technology ownership is considered necessary to take lead in the global competitive market and also to make value addition in global supply chains with IPRs. The technology control also facilitates development and production of cost-effective communication network products and devices to bridge digital divide considering the large rural geographies in the country.

Atmanirbhar Bharat initiative provides a big impetus to address current and future technology needs in telecom sector. The following initiatives are being driven in the next generation communication technologies including 5G, upcoming 6G, Quantum Communications etc.

- i. **5G Test bed:** The Indigenous 5G Test bed project funded by DoT has reached its final stages. The eight (8) implementing agencies viz IIT Bombay, IIT Delhi, IIT Hyderabad, IIT Madras, IIT Kanpur, IISc Bangalore, SAMEER and CEWiT have been working over a period of 36 months. Costing ~ Rs 224 Cr, the project is likely to be completed by 31st December'2021, paving the way for end-to-end testing of 5G User Equipments (UEs) and network equipment by 5G stakeholders developing 5G Products/Services/Use cases, including indigenous Start-ups, SMEs, Academia and Industry in the country. The indigenous 5G test bed, a visionary technology development project initiated in telecom space, will enable development, testing and proliferation of 5G technology system components, cross-sectoral use cases,

besides setting up foundation for the development of “6G Technology landscape” in the country.

- ii. **5G Reference to TRAI and rollout:** In September, 2021, a reference has been sent to TRAI, seeking recommendations for the auction of spectrum identified for International Mobile Telecommunications (IMT)/ 5G with regard to reserve price, band plan, block size, quantum of spectrum to be auctioned and conditions of auctions in 526-698 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300-3670 MHz and 24.25-28.5 GHz bands for 5G public as well as private 5G networks, for meeting the spectrum requirements of captive 5G applications of the industry (Industry 4.0). Process of assignment of frequencies to TSPs would be initiated at the earliest possible.

With regard to rollout of 5G services, Telecom Service Providers (TSPs)- M/s Bharti Airtel, M/s Reliance Jio and M/s Vodafone Idea- have established 5G trials sites in Gurugram, Bangalore, Kolkata, Mumbai, Chandigarh, Delhi, Jamnagar, Ahmadabad, Chennai, Hyderabad, Lucknow, Pune, Gandhi Nagar cities. These Metros and big cities would be the first places for launch of 5G services in the country.

- iii. **Implementation of 5G Technologies**

- **Permission to Telecom Service providers (TSPs) for conducting 5G Trials:** The Department of Telecommunications has granted permissions to TSPs like M/s Bharti Airtel Ltd., M/s Reliance Jio Infocomm Ltd., M/s Vodafone Idea Ltd. and M/s MTN for conducting 5G Technology trials with India specific use cases. TSPs have made significant progress in deploying 5G trial network and demonstrated some of the indigenous use-cases, including those generated by 5G Hackathon organized by DoT. They have also signed an Agreement with some of the indigenous 5G technology members for moving ahead for use-case trials. This augurs well for Start-ups/SMEs/Academia and will strengthen the 5G ecosystem in India.

- **Setting up of 5G Use Case Labs**

DoT has set up Inter-Ministerial Committee for setting up of India specific Use Case labs in different economic verticals like Education, Healthcare, Agriculture, Public safety, FinTech etc. DoT has approved proposal for setting up of 5G Use Case Lab in Banking, Financial Services and Insurance (BFSI) at Institute of Development and Research in Banking Technology (IDRBT), an Institute under RBI, at Hyderabad with a proposed funding requirement of Rs. 22 Crores for a period of 3 years. IDRBT has started working with banks and industry for development of Use cases in Banking services.

IDRBT has identified Fifteen entities for potential use case development, broadly in the areas of customer self-service, collaboration between BFSI and telcos, NG-branches, and field staff enablement. IDRBT is also working with banks and start-ups to pilot the use cases. A broad range of technologies

are being leveraged for the use cases, including AR/VR/MR, Cloud & MEC, Computer Vision, Wearables, Haptics, Humanoids, IoT, Drones, AI / ML, and DLT.

- **5G Hackathon- Application Development**

5G Hackathon was launched with the objective to identify and promote applications, relevant to India in different categories like Healthcare, education & governance, Banking, finance and insurance/ Cyber Security/ Enterprise transformation, industry 4.0 Agritech & Livestock and Smart cities & infrastructure etc, in the 5G realm, which will be developed into workable products/ solutions. Total of 1024 applications were received wherein during phase 1, 100 selected applicants were awarded with INR 1,00,000/-. During phase 2 these 100 winners, were provided mentorship and connected with academia, industry and Government and out of these 100 winners, 30 applicants developed workable product/ solutions. The jury constituted has short listed 30 applicants as winners.

- iv. **6G Technology Innovation Group (TIG):** A 6G Technology Innovation Group (TIG) is constituted by DoT with the objective to co-create and participate in the development of 6G technology ecosystem through increased participation in capability description, standards development at international standard setting bodies. This would be necessary to prepare India's manufacturing and services ecosystem to capitalise on 6G opportunity. 6G TIG, comprises members from Government, Academia, Industry Associations and TSDSI (Telecom Standards Development Society of India). In its 1st meeting on 25.11.2021, TIG members presented the future technology needs in different sectors of economy to enhance India's contribution in global value chain. Taskforce are formed to make recommendations on aspects viz. Mapping of global 6G activities; India's competencies and potential pre-Standardization activities; Mission 6G program; Research views on IMT for 2030 and beyond; with regard to Networks, Devices, Spectrum, multi-disciplinary innovative solutions.
- v. **Quantum Communications (QC):** C-DOT, the R&D arm of DoT, is currently working on Quantum communication systems. Under the National Mission on Quantum technologies and Applications, the ETG (Empowered Technology Group) has identified C-DoT as the lead agency for Quantum Communications, one of the four components of the National Mission. The TSDSI has recently approved a Study Item to study the need for post-quantum-cryptography in 5G Network in various Industry Verticals and bring out various approaches to evolve a migration path towards security based on post-quantum-cryptography.





Optical Cable laying work



Powered by NoteCam

Latitude: 18.990665
Longitude: 79.001762
Elevation: 216.62 m
Accuracy: 3.8 m
Time: 25-12-2020 15:27
Note: MP000 to Kandana Kunta GP

Chapter 3

International Relations and Cooperation

Telecommunications by definition cuts across borders of different countries. Active participation and cooperation in this area is critical keeping in view the technology intensive nature of this sector. Accordingly, India has been proactively participating in multilateral and bilateral forums. Similarly, India has also been cooperating with different countries and industry and professional bodies in this area.

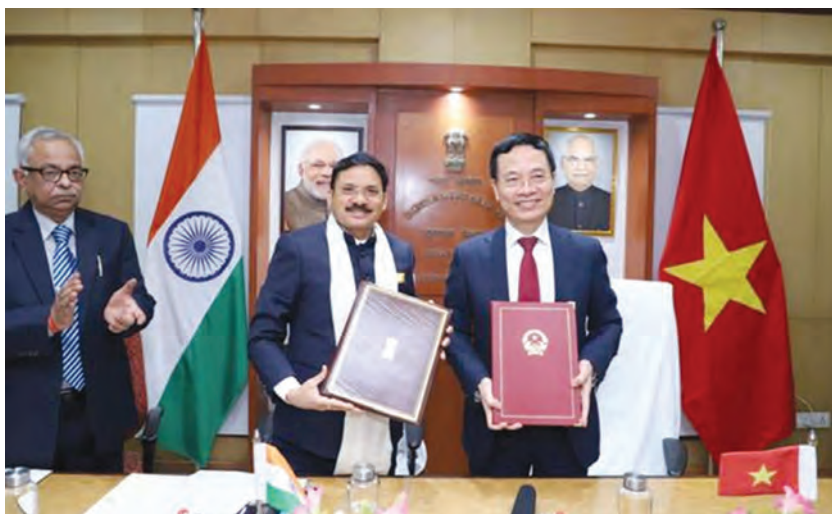
3.1 INTERNATIONAL RELATIONS

There were significant activities in bilateral as well as multilateral cooperation with Intergovernmental Organizations such as International Telecommunication Union (ITU), Asia-Pacific Telecommunity (APT), and International Telecommunications Satellite Organization (ITSO) etc. Bilateral relations and technological cooperation were strengthened. The activities on international relations front are summarised as below.

3.1.1 Bilateral Cooperation:

- (i) **MoC with Japan:** A Memorandum of Cooperation (MoC) in the field of Information and Communication Technologies between the Ministry of Communications, Republic of India and the Ministry of Internal Affairs and Communications of Japan was signed on 15th January 2021.
- (ii) **Bilateral meeting between India and UK:** A bilateral meeting was held between Indian delegation headed by Hon'ble Minister for Communications, Government of India and visiting delegation of UK headed by Hon'ble Secretary of State for International Trade, UK on 05th February 2021 in Sanchar Bhawan, New Delhi. Discussion was held on setting up a ministerial-level UK-India Strategic Technology Dialogue and to establish a Joint Working Group on cooperation in the field of Telecommunications/ ICT.
- (iii) **Bilateral meeting between India and Australia:** A bilateral meeting was held between Indian delegation headed by Secretary, DoT and delegation from Australia headed by Secretary, Department of Infrastructure, Transport, Regional Development and Communications, Australia through virtual platform on 19th February 2021 for discussion on potential areas of cooperation in field of telecommunications such as harnessing the potential of 5G apps and developing start-up ecosystem, telecommunication infrastructure in rural/remote areas, Fixed line broadband, regulation of OTT players, telecommunications standard setting in the ITU, telecommunications network security and Spectrum management.
- (iv) **MoU with UK:** A Memorandum of Understanding (MoU) between the DoT, Government of Republic of India and the Department of Digital, Culture, Media and Sports (DCMS) of the United Kingdom Government on cooperation in the field of Telecommunications/ICTs was signed on 23rd June 2021.

- (v) **India-US 5G Network Security Seminar:** The India-US 5G Network Security Seminar was held virtually on 15th -16th September 2021. The Seminar was conducted by US Commercial Law Development Program (CLDP) in which participants and speakers from DoT, NSCS, MEA, TRAI, etc participated. Representatives of top US agencies namely Cybersecurity and Infrastructure Security Agency (CISA), U.S. Center for Strategic and International Studies (CSIS), U.S. Federal Communications Commission (FCC), etc. participated in the seminar.
- (vi) **India-Japan Intergovernmental Consultation and Public-Private workshop in the field of 5G:** India-Japan Intergovernmental Consultation and Public-Private workshop in the field of 5G was held virtually on 29th - 30th September 2021. Participants and speakers from government as well as industry and academia participated in the event. Representatives from DoT, MEA, MEITY, NSCS, Airtel, Reliance Jio, BSNL, ITI Ltd, Sterlite Technologies, COAI, CDOT, IISc, IIT Madras and IIT Hyderabad participated from Indian side and Ministry of Internal Affairs and Communications (MIC), National Security Secretariat (NSS), National Center of Incident Readiness and Strategy for Cybersecurity (NISC), Ministry of Economy, Trade and Industry (METI), NEC, NTT, Rakuten Mobile and 5G Mobile Communication Promotion Forum (5GMF) participated from Japanese side.
- (vii) **Bilateral meeting with Vietnam:** A bilateral meeting was held between India and Vietnam on 17th December 2021 at Sanchar Bhawan, New Delhi. The Indian delegation was led by Minister of State for Communications, Shri Devusinh Chauhan and the Vietnamese delegation was led by Mr. Nguyen Manh Hung, Minister of Information and Communications. During bilateral meeting, a Letter of Intent (LoI) was signed. On this occasion, Minister of State for Communications, India stated that India has been witnessing exceptional growth in the field of Post and Telecommunications and recent telecom reforms in the country would unleash the true potential of the sector to take it to the next higher level. Viet Nam appreciated the efforts of India for developing indigenous 5G network under “AtmaNirbhar Bharat”.



Minister of State for Communications, India (left) and Minister of Information and Communications, Vietnam (right) during bilateral meeting on 17th December 2021 at Sanchar Bhawan, New Delhi

3.1.2: Activities on Multilateral Cooperation and Conferences of Intergovernmental and International Organizations

- (i) 1st ASEAN Digital Senior Officials Meeting with India (1st ADGSOM +India) and 1st ASEAN Digital Ministers' Meeting with India (1st ADGMIN+India):

The 1st ADGSOM+India meeting was held in virtual mode on 20th January 2021. India presented ASEAN India ICT work plan 2021 in the meeting. Subsequently, the 1st ADGMIN+India meeting was held in virtual mode on 22nd January 2021. The meeting was co-chaired by H.E. Dato' Saifuddin Abdullah, Minister of Communications and Multimedia, Malaysia and Shri Anshu Prakash, the then Secretary, DoT, India and participants included representatives from all ASEAN Member States. ADGMIN+India meeting considered and approved the ASEAN-India ICT Work Plan 2021.

- (ii) **WSIS (World Summit on Information Society) 2021:** On 22nd March, 2021, Hon'ble Minister of State of Communications delivered a hi-level policy statement during the High-Level Policy Session 1 on the theme of "Bridging Digital Divides". The session was attended by ITU Secretary-General, Ministers from Russia, Afghanistan, Zimbabwe, Turkmenistan, Iran and other high level dignitaries from across the globe. Hon'ble Minister highlighted policies and programs undertaken by the Ministry under the visionary leadership of the Prime Minister to bridge the digital divide.
- (iii) **India-EU Joint ICT Working Group meeting:** The 13th meeting of the India-EU Joint ICT Working Group took place on 19th April 2021 in virtual format. Joint Secretary, DoT, co-chaired the session on telecommunications. DoT delegation included representative from International Relations division, Security division, IC division of DoT; TSDSI; TEC and NSCS. In the session on telecommunications, both sides had discussion on Cooperation on standards (5G and beyond 5G); Mandatory Testing and Certification: Recognition of European testing reports and certificates, ILAC reports; Security Testing (ITSAR); Telecom PLI Scheme; Cooperation on telecom security (e.g., exchange of best practices); and National Security Directive (India).
- (iv) **ITU Council Meeting:** India attended the virtual consultation of councillors held from 8th-18th June, 2021. Several important issues were deliberated including hosting of World Telecommunication Standardization Assembly (WTSA-20) and opening of ITU Area Office in India.
- (v) **ITU Digital World 2021:** Hon'ble Minister of State for Communications, Shri Devusinh Chauhan participated in the Ministerial Roundtable Session of the 50th anniversary edition of International Telecommunications Union (ITU) Digital World 2021 on 12th October 2021, hosted by the Government of Vietnam. In the above session,

Prime Minister of Vietnam and Ministers of Azerbaijan, Cambodia, Costa Rica, Lao P.D.R., Myanmar and Vietnam also participated. The topic for the deliberation was "Cutting the cost: Can Affordable Access Accelerate Digital Transformation?"



Hon'ble Minister of State for Communications participated in the Ministerial Roundtable Session of the 50th anniversary edition of ITU on 12th October 2021.

- (vi) **Third ASEAN-India Track 1.5 Dialogue on Cyber Issues:** Third ASEAN-India Track 1.5 Dialogue on Cyber Issues was held online on 20th October 2021 by Observer Research Foundation (ORF) with the Ministry of External Affairs (MEA). Participants and speakers from DoT, NSCS, MEA and ASEAN Member States shared their views in the event.
- (vii) **BRICS Communications Ministers' Meeting 2021:** Under India's chairmanship for BRICS 2021, the 7th BRICS Communications Ministers Meeting was held on 22nd October 2021 in virtual format preceded by meeting of Working Group on ICTs Cooperation on 20th - 21st October 2021.



Hon'ble Minister of State for Communications chaired the 7th meeting of BRICS Communications Ministers on 22nd October 2021

Hon'ble Minister of State for Communications, Shri Devusinh Chauhan chaired the 7th meeting of BRICS Communications Ministers through video conferencing on 22nd October 2021. In the meeting, Ministers adopted the Terms of References of Digital BRICS Task Force and supported the advancement in work of the BRICS Partnership on New Industrial Revolution (PartNIR) across several Working Groups meeting in 2021. Ministers also adopted the proposal to host the Digital BRICS Forum annually to facilitate sharing of information and knowledge, practices, initiatives, etc. on agreed cooperation areas.

- (viii) **Intersputnik:** India attended the joint 49th session of the Board and 23rd session of the Operations Committee of the Intersputnik International Organization of Space Communications on 5th May 2021. Several important issues were deliberated. India also participated in the Operations Committee of the Intersputnik International Organization of Space Communications through video-conference on 15th November, 2021.
- (ix) **ITU Centre of Excellence:** Regional Office for Asia and the Pacific, ITU organized the 6th Steering Committee (SC) for the Center of Excellence (CoE), on the 30th November 2021 and nominated India as the chair of the SC for CoE programme year 2022. The main responsibility of the SC is to provide recommendations to ITU concerning the CoEs operations and ways of improving the performance.
- (x) **ITU Area Office & Innovation Centre:** Government approved establishment of an Area Office & Innovation Centre of ITU in New Delhi and signing the Host Country Agreement (HCA) with ITU in November 2021.
- (xi) **India-ITU Joint Cyberdrill 2021:** DoT and ITU conducted India-ITU Joint Cyberdrill 2021, for Indian entities especially Critical Network Infrastructure operators. It was

a four days' virtual event starting from 30th November to 3rd December 2021. Several high level speakers, panellists and experts from ITU, United Nations Office on Drugs and Crime (UNODC), INTERPOL, National Security Council Secretariat (NSCS), Indian Computer Emergency Response Team (CERT-In) and other eminent organizations participated in the event.



Inaugural Session: India – ITU Joint Cyberdrill 2021 on 30th November 2021

- (xii) **World Telecommunications Policy Forum (WTPF-21):** Secretary, DoT virtually addressed the 6th World Telecommunication/ICT Policy Forum (WTPF-21) on 16th December 2021. While delivering the policy statement, he emphasized that India is home to over 1.2 billion telecom subscribers & BharatNet is one of world's largest rural optic fiber network. He also highlighted the India's National Unique Identification System – Aadhaar and Universal Payment Interface (UPI) and informed that India is home to a very strong start up and innovator community.



Shri K. Rajaraman, Secretary, DoT addressing the World Telecommunication Policy Forum – 2021

3.2 INTERNATIONAL COOPERATION

The International Cooperation Division of the DoT deals with activities of prime importance relating to WTO negotiations, bilateral and multilateral trade and economic agreements relating to telecommunications, coordination with Telecom Equipment and Services Export Promotion Council (TEPC); Telecommunications Standards Development Society of India (TSDSI), administration of Telecom Centre of Excellence (TCOE India), hosting of Exhibitions/Conferences and seminars relating to telecom etc.

3.2.1 Bilateral Cooperation:

India and UAE are negotiating Comprehensive Economic Partnership Agreement (CEPA) Agreement which includes Annex on Telecommunications as a part of Trade in Services. The CEPA Agreement comprises of Articles including Resale of Telecommunication Services, Interconnection with Major Suppliers, Provisioning of Leased Circuit Services, Submarine Cable Systems and Co-Location of Equipment in Submarine Cable.

3.2.2 India Mobile Congress 2021

DoT along with Cellular Operators Association of India (COAI) organized India Mobile Congress 2021 (IMC 2021) for the fifth year. Keeping in mind the safety of all parties involved, this edition of India Mobile Congress was a virtual event, from 08th to 10th December 2021, with the theme “Connectivity for the Next Decade”. The event was encouraged by Hon’ble Prime Minister of India, Shri Narendra Modi with a futuristic message for Indian telecom industry, and inaugurated by the Hon’ble Minister for Communications, Electronics & Information Technology and Railways, Shri Ashwini Vaishnaw in the presence of Hon’ble Minister of State for Communications, Shri Devusinh Chauhan and dignitaries from government and industry.

IMC 2021 had 23,118 visitors, national and international delegates, over 140 partners & exhibitors, 70 Make in India booths, 10 5G start-ups and more than 226 speakers. The Conference had 41 keynote sessions, 21 panel discussions and 13 fireside chats, with session views of 11,535 spanning three days.



Inauguration of IMC 2021 (Virtual event) by Shri Ashwini Vaishnaw, Hon’ble Minister of Railways, Communications & Electronics and Information Technology

The focus area for IMC 2021 was 5G and emerging technologies and how they will transform the coming decade. Some of the important topics discussed were 5G and Roadmap for its implementation such as policies, regulations, and standards. Additionally, there were fruitful discussions on the role of technology to speed up the digital inclusion to the bottom of the pyramid, connecting the under-connected society, developing new regulatory frameworks for digital technologies, bringing Indian manufacturing companies to the forefront with PLI support, industry, and Government support to start-ups and drive innovation, ease of doing business to overcome the impediments for expansion of telecom networks and many more technical and thought leadership topics. Other focus areas were Internet of Things (IoT), network automation, Open RAN and cyber security.

3.2.3 Telecom Centre of Excellence (TCOE) India

TCOE India has been created as a Public Private Partnership (PPP) initiative by the DoT in the year 2007. The important activities of TCOE India during the year 2021 are to strengthen the R&D ecosystem in ICT where Government works as a facilitator, Industry as the ultimate user, and academia as the research unit. The brief of work done is as under.

- **TCOE India as Implementing agency for DCIS Scheme of DoT:** DoT has launched Digital Communication Innovation Square (DCIS) to promote the ecosystem for research, design, development, proof of concept testing, IPR creation, pilot project and manufacturing i.e., complete value chain to make India a global hub for production of telecommunication equipment and a center for digital communication services. DoT has selected TCOE India as Implementing agency for this Scheme. Total 17 startups were selected under the DCIS Scheme by the apex committee for support under the scheme and first installment has been released in October 2021.
- **5G Hackathon:** TCOE India is also involved in the 5G Hackathon as an Execution Partner of DoT to identify the best India specific use cases in 5G domain.

3.2.4 Telecom Equipment and Services Export Promotion Council (TEPC)

Telecom Equipment and Services Export Promotion Council (TEPC) has been set up by the Government of India to promote and develop exports of telecom equipment and services from India.

TEPC Participation in events during 2021

TEPC organized various structured promotional events so as to create awareness about the capability of Indian telecom products and services. In view of the emerging situation, on account of the adverse impact of COVID-19, there was not only a need to sustain the existing markets but also for offering Indian products and services as a potential alternative to the world market. Indian telecom stakeholders have explored the telecom markets in different countries virtually during the year 2021 as under.

a) **ConnecTech Asia 2021, 14th-16th JULY 2021 (VIRTUAL):**

TEPC participated in ConnecTech Asia Singapore, Virtual with 11 companies on 14th-16th July 2021.

b) TEPC along with its members participated in BRICS Trade Fairs 2021, 16th-18th August 2021 (Virtually):

10 TEPC members participated in BRICS Trade Fairs 2021 scheduled from 16th-18th August 2021 (virtually). BRICS Trade Fair is an initiative of the Department of Commerce, Ministry of Commerce & Industry, Government of India and is a key engagement being held under India's Chairmanship in 2021.

c) Indo - Sudan trade and Investment opportunities in the field of Telecommunications, 09th September 2021:

TEPC, with the support of Embassy of India in Sudan organized Indo - Sudan Trade and Investment opportunities in the field of Telecommunications on 09th September 2021 (Virtual Buyer Seller Meet). This tailor-made match-making platform allowed 25 buyers to connect with 11 Indian Telecom & IT companies (Manufacturer/System Integrator) as per their product requirement.

d) India Africa ICT Expo & Conference, 5th & 6th October 2021 (Virtual)

To reiterate the relationship and commitment between India, Ghana and other African countries, TEPC, with support of Ministry of Commerce & Ministry of Communications, hosted 'India Africa ICT Expo & Conference' during 5th & 6th October 2021. 30 Indian companies participated in this event.

e) AfricaCom 2021 (Virtual), on 08th-12th November 2021

The exhibition at AfricaCom 2021 provided an excellent opportunity to see the latest products, solutions and technologies. Exhibitors were able to meet potential buyers and generate leads for their business. The AfricaCom 2021 event provided the perfect setting for companies in front of Africa's leading Mobile Network Operators (MNO's) and technology companies.

f) India Mobile Congress, 8th-10th December 2020 (Virtual Expo)

TEPC organised Make in India Pavilion in India Mobile Congress, from 8th-10th December 2021. The event was organized to provide the Indian companies platform to meet and network with more foreign companies from different countries under one roof. Foreign delegates were invited through Indian missions and other chambers to promote the Make in India initiative of the Indian manufacturers. India has started getting global recognition for telecom equipment exports and many foreign telecom buyers are keen to source telecom products from India. 65 companies participated in the event under champion sector scheme of DoT.

3.2.5 Telecommunications Standards Development Society India (TSDSI)

TSDSI was established as an autonomous body by Indian industry, Academia, Research entities and the Government of India to drive Telecom Standardization activities in India and project Indian interests in global forums.

TSDSI is a member of Global Standards Collaboration (GSC), a body comprising all global telecom standards development organizations (SDOs), an Organizational partner of third Generation Partnership Project (3GPP), which is driving next generation wireless standards (eg.5G), Partner Type 1 of one machine to Machine (M2M), an international partnership project working on creation of a standard M2M service layer framework and Members of ITU-R SG5 (Terrestrial Services) and ITU-T SG15 (Transport, Access and Home).

(a) Global Impact

- TSDSI's 5G Radio Interface Technology named as "5Gi" has been incorporated as one of the technologies for IMT 2020 in the ITU Radio Communication Sector (ITU-R) Recommendation ITU-R M.2150 published in February 2021. 5Gi, the first ever Mobile Radio Interface Technology contribution from India to become part of ITU-R's IMT recommendation, went through a rigorous evaluation process of the ITU-R working groups over a period of 3 years before getting the approval. This standard is a major breakthrough for bridging the rural-urban digital divide in 5G deployment due to enhanced coverage. It enables connecting majority of India's villages through towers located at gram panchayats in a cost-effective manner. It has found support from several countries as it addresses their regional needs from a 5G standpoint.
- TSDSI contributions on key resolutions for WTSA 2022 submitted to TEC have been incorporated in the APT recommendations to WTSA.

(b) Standardization Activities

- Transposition of 3GPP Specifications relevant to ITU-R M. 2012-5 Recommendations as TSDSI standards: TSDSI Study Group – Networks transposed 168 Nos. unique 3GPP Specifications related to ITU-R M.2012-5 recommendations. Total standards published by TSDSI now stands at 2,769.

(c) Contributions and Engagement in Indian & Global Ecosystem

At ITU

- 5Gi Technology Specification to meet LMLC requirements for India (FY2021)
- Contributions to 6G Vision & Technology Trends.
- Active participation and contributions to security, accessibility, cloud computing, IoT/M2M, AI/ML related studies and standards. (ongoing)

At 3GPP

- 5Gi acceptance with 3GPP 5G: TSDSI members had submitted a proposal in 3GPP for inclusion of 5Gi features in the 3GPP TSG RAN #94e held in December 2021, where a way forward for enabling the acceptance of 5Gi into 3GPP 5G Rel 17 was agreed. The proposal will be finally approved, earliest in the next TSG RAN (#95e) to be held in March 2022.

- Contributions for Advanced 5G (ongoing).
- Holding Leadership positions at 3GPP:
- 3GPP - PCG Chair for calendar year 2022
- Deputation of TSDSI Secretariat expert to 3GPP Secretariat to support activities of Technical Group (2020 through end 2022)

At one M2M

- No. of Individual Members participating in oneM2M - 58
- Leadership roles
 - Vice Chair of Steering Committee (Nov 2020 – Nov 2022)
 - Vice -Chair of SDS Study Group (Feb 2021 – Feb 2023)
 - Vice Chair- MARCOM Subcommittee (2021-22)

(d) Partnerships

- TSDSI signed adoption agreements with IEEE-SA and ATSC, to enable it to directly adopt their standards for use.
- TSDSI and Open Connectivity Foundation (OCF) signed a Liaison Agreement to collaborate in the areas of developing a bi-directional bridge interworking specification between OCF and oneM2M standards in India.
- TSDSI and ORAN Alliance signed an MoU to cooperate to grow the open interfaces and open RAN ecosystem; exchange information regarding challenges and use cases pertinent to problems in India subcontinent region and contribute to open standard definition and proliferation.

Published Reports and Standards

Group	No. of Technical Reports Published	No. of Technical Standards Published
Study Group - Networks	6	2,633
Study Group - Service & Solutions	87	136



Mobile Tower





CHAPTER 4

OFFICES AND FIELD ORGANISATIONS

Department of Telecommunications (DoT) units, including attached, subordinate and field offices, are in this chapter.

4.1 OFFICE OF MEMBER (TECHNOLOGY)

4.1.1 Member (Technology) {M(T)} is a full-time member of the Digital Communications Commission (DCC) and ex-officio Secretary to the Government of India. Office of M(T) plays an important role in the troika of “regulation, spectrum, technology” for communication services across platforms including terrestrial, satellite, and submarine. Further, it ensures coherent use of regulation, spectrum, technology for orderly growth of the wireline and wireless communication technologies, infrastructure, networks, services and applications in the country. In the emerging landscape of next generation communication networks and technologies, the spectrum & technology resources and collaborative regulatory policy frameworks play a yeoman role in ensuring delivery of public telecom services to masses and enterprises.

4.1.2 Delivering communication services in a billion plus market requires mega investments and a strong facilitation from the different divisions of DoT to the service providers and technology industry enabling ease of doing business while ensuring a level playing field. Access Services, Carrier Services, Data Services, and Satellite Services divisions enable proliferation of communication networks and services with enabling license frameworks. These divisions are orchestrating the reforms of the licensing and regulatory framework for communication services so that the policy framework for communication services remain aligned with the larger national objective of promoting digital economy including export of digital services.

4.1.3. Another key aspect of Technology vertical is that it performs the role of spectrum manager as the custodian of radio spectrum in this era of wireless technologies to reach masses and nook and corner of the country. Apart from public services, the vertical facilitates and offers the precious spectrum for strategic agencies viz. law & order, public broadcasting, transport sectors, R&D, community radio, remote sensing applications.

4.1.4. Disaster Management is another key function of the technology vertical. This has enabled operationalization of Standard Operating Procedure to deploy emergency measures making telecom services available during the natural calamities and also during the pandemic period very efficiently with agility. It is also playing an instrumental role in making the communication infrastructure and networks disaster resilience.

4.1.5. The technology world is transforming quickly and cloud communications & 5G applications are gaining momentum. The Technology vertical is facilitating 5G technology trials and also encouraging the development of 5G use cases. Unlike in previous era of telecom technology generations, there is a new breed of Indian technology companies who are working on indigenous

development of technology products giving fillip to 'AtamaNirbharata' call by the Hon'ble Prime Minister. The Network Technologies and Standards-R&D-Innovation (SRI) divisions are facilitating and providing necessary handholding for these telecom technology companies which include startups and SMEs across technologies and service portfolios viz. Quantum, M2M, IoTs, Network, Devices, Cross-haul, GPON technologies etc.

4.1.6. The Technology vertical also caters to the function of Network Operations Control Center (NOCC) under DoT to control the transmissions from ground segment (satellite earth stations) along with the Master Control Facility under Department of Space to manage the operation of Satellites in orbit. NOCC provide the network clearances before start of operations from any earth station accessing Satellite and also carry out the monitoring and on-line operational control & co-ordination.

4.1.7. Industry and stakeholder consultation is a well anchored principle in the working of the 'Technology Vertical' to continuously seek industry inputs and take necessary measures for creating an enabling and empowering environment for the industry to perform and achieve the objectives of National Digital Communication Policy-2018.

4.2 OFFICE OF MEMBER (SERVICES)

- a)** Member (Services) is a permanent member of the Digital Communication Commission and ex-officio Secretary to the Government of India, overall in-charge of matters related to Telecommunication Services, Information & Communication Technologies (ICT), Telecommunications/ network security, Internet security, Internet governance, human resources, capacity building, training, skill development, public grievances as well as matters relating to staff unions and federations of all organizations/ Public Sector Units (PSUs) under DoT and erstwhile Department of Telecommunication Services (DTS) and Department of Telecommunication Operations (DTO). Member (Services) is the cadre controlling authority for the officers belonging to Indian Telecommunications Service (ITS) Group 'A', Indian Post & Telegraph Building Works Service (IP&TBWS), Group 'A' and Telecommunication Engineering Service Group 'B'.
- b)** Member (Services) is overall in-charge of the country-wide Centralized Monitoring System (CMS) and Internet Monitoring System (IMS), which have been set up to supplement the needs of Law Enforcement Authorities (LEAs) and the Designated Authorities of Central/ State governments and Union Territories.
- c)** Member (Services) controls several organizations of DoT, carrying out work in the fields of policy, R&D, standardization, accreditation, testing, certification, telecom security, capacity-building & innovation, namely, Telecom Engineering Centre (TEC), Centre for Development of Telematics (C-DoT), National Centre for Communication Security (NCCS), and the National Telecommunications Institute for Policy Research, Innovation & Training (NTIPRIT).

- d) Member (Services) is in-charge of affairs of PSUs of DoT, namely, M/s ITI Limited & M/s Telecommunications Consultants India Limited (TCIL), which are primarily involved in indigenous manufacturing, telecom consultancy and project execution. Member (Services) is also in charge of residual matters related to M/s HTL Limited, M/s Tata Communications Ltd. (erstwhile VSNL) and M/s Hemisphere Properties India Limited (HPIL).

4.2.1 Office of Advisor (Operations)

The Adviser (Operations) is responsible for

- a) Prompt resolution of Public Grievances, overall co-ordination and monitoring of Court Cases, creating awareness amongst the stakeholders for better resolution of customer grievances and Citizens' Charter for DoT.
- b) To create an enabling framework, including funding mechanism, to meet the country's demand for skilled human resources in the telecom sector all other aspects relating to skill development in telecom field.
- c) All the matters pertaining to the Telecom PSUs viz, TCIL & M/S ITI Limited (except Board level appointments) and the residual matters of three companies- M/S HTL Limited, M/S Tata Communications Ltd. (erstwhile VSNL), and M/S Hemisphere Properties India Limited (HPIL)
- d) All policy and allied matters relating to service telephone connections
- e) All policy matter relating to Telephone Advisory Committee (TAC)
- f) Matters in respect of SC, ST, OBC & PwD employees of DoT including CPSEs and industrial disputes
- g) Retention policy guidelines and residual matters relating to staff quarters and rented buildings of BSNL/ MTNL, issuance of Presidential order and hiring of space for field units relating to land/ building, liasoning with MOUD on matters relating to policy.

4.2.2 Telecom Security Divisions

Over the past few years, as use of ICT has proliferated, there has been a rapidly-growing awareness on the part of all ICT users of the need to ensure effective protection against the Telecom security threats that continue to increase and diversify with alarming rapidity. The widespread use of various devices over the telecommunication networks, and in particular the ability to access and control so many aspects of daily life via telecommunications, has meant that it is essential to build solid security protection into industrial, commercial and consumer products and services being offered by the Telecom Service Providers and to ensure that sufficient attention is paid to security throughout the entire lifecycle of the product or service. Telecom is the underlying infrastructure over which

most of the other sectors of economy are operating. Hence telecommunication has been designated as one of the critical Information Infrastructure.

The entire gambit of the Telecom Network, Product and Services Security in the country including framing of policies, regulatory framework including rules and guidelines in respect of security of Telecom Networks and the monitoring and enforcement thereof, is managed by the Security Assurance-I (SA), Security Assurance-II (SA- II) and Security – Policy, Planning & Intelligence (SPPI) divisions and subordinate office of NCCS.

The SPPI (Security Policy, Planning and Intelligence) division is responsible for the policy guidelines & framework with respect to security. This unit is also responsible for interfacing with the law enforcing agencies for telecom related support on security aspects. Facilitating Lawful interception and monitoring of communication messages by Law Enforcement Agencies under section 5(2) of Indian Telegraph Act, administering rules related to Lawful Interception e.g. Rule 419A, SOP. Matters related to Call Detail Records (CDR), Location Based Service, framing Rule 419B, vital installations, policy related to CLIR, issues relating to obtaining CDR by Security Agencies are also handled by SPPI Division. Matters pertaining to the Secured and Dedicated Communication Network are also handled by SPPI Division. SPPI Division coordinates with Cyber Diplomacy Division of MEA and participation in Joint Working Group (JWG)/ Cyber Dialogs with other Nations.

The SA (Security Assurance) division is responsible for ensuring the security of Telecommunication networks comprising of network elements, products and services. This is ensured by framing the guidelines, mandating the security standards, Creating Cyber Awareness & issuing Guidelines/ Advisories, interaction with the National Cyber Security Coordinator (NCSC) and NSCS (National Security Council Secretariat) on any cyber issue involving the Telecommunication Sector, investigation into the telecom security incidences and preventive action thereof, Preparing Security Audit procedures and reporting, SOPs for telecom security matters like personalization of SIMs in the country etc. addressing security, theft and other concerns including reprogramming of mobile handsets, exercising control over devices having an IMEI being imported, Coordination with I4C and MHA for Cyber Crime Ecosystem Management with respect to suspect mobile number reported and Appropriate action in telecommunication network thereof, Implementation of Internal System Security Audit of End-User Devices and information network.

The SA-II (Security Assurance-II) division is responsible for the operationalization of projects to take care of Security of communications in the telecommunication network. This is achieved by undertaking the Research and Development of telecommunication Security products and systems, handling of cyber vulnerabilities & incidences detected Suo moto and reported by various agencies, Facilitating Lawful interception of telecommunications in the country by the Law Enforcement Agencies and Security Agencies (LEA/SA), coordinate the matters related to CMS & IMS with field units, C-DoT, MHA, LEAs and organisations. The SA-II division is also exercising the administrative control over the C-DoT and undertakes the recruitment of C-DoT Board i.e. Executive Director and Directors of C-DoT Board, Approval of Annual Business Plan, Annual budget and release of Grants to C-DoT, Conducting Governing Council and Steering Committee meetings of C-DoT, Submission

of Annual Reports, Audited Reports and Performance Review report in Lok Sabha and Rajya Sabha.

Major achievement of these Division during the year are as follows

Indian Counterfeited Device Restriction (ICDR) system has been operationalized to regulate the import of mobile handsets through various customs ports with the objective to prohibit import of mobile phones with duplicate, fake and non-genuine IMEI. Central Equipment Identity Register (CEIR) system has been deployed in Maharashtra and Delhi to do technology testing for blocking and tracing of lost or stolen mobile phones. After finalizing the technology to be used for CEIR, it is planned to be expanded to cover the entire country. In order to bring uniformity in the Security policy of the TSPs, the minimum Requirements of Security policy (MRSP) document has been issued to all the TSPs. In coordination to MRSP, the SOP for guiding the conduct of cross check Security Audit by the LSA field units of DoT in the form of minimum Baseline Security Standard (MBSS) document has been issued.

4.2.3 Capacity Building Divisions

The Skill Development Division is responsible to put in place an ecosystem to assess the manpower requirement of the country at different skill and expertise levels and to identify the relevant needs of the sector and prepare a roadmap. It coordinates with the stakeholders like Ministry of HRD, Ministry of Skill Development and Entrepreneurship (MSDE), National Skill Development Corporation (NSDC), Telecom Sector Skill Council (TSSC), industry, academia, telecom research organizations, PSUs etc. to create an enabling framework including funding mechanism to meet the demand for human resources in the sector.

Capacity Building & Training Division in association with DoT's Central Training Institute i.e. NTIPRIT (National Telecommunications Institute for Policy Research, Innovations & Training) is looking after the responsibilities of designing and conduction of all the training programmes including Induction Training, Mid-Career Training Programme (MCTP) and In-service courses for ITS Gr. 'A', P&T BWS Gr. 'A' and TES Gr. 'B' officers of DoT. It also formulates various new training and capacity building programmes for officers of DOT.

Some of the key initiatives & achievements for the current year includes:

- First 'Pandit Deen Dayal Upadhyay Awards' finalised and two awardees honoured during the year by Hon'ble Minister of Communications.
- Approval/ Review of Qualification Packs (QPs) prepared by TSSC under the framework of National Skills Qualification Framework (NSQF) of National Council of Vocational Education and Training (NCVET).
- Coordination with NTIPRIT for content development for 5G education awareness. Coordination with NTIPRIT & TSSC for creation of 5G QPs for training program.

- Coordinate with NTIPRIT for Creation of Knowledge Repository (KR) for Telecom Sector for educational resources for the Telecom Industry.

4.2.4 Human Resource Divisions

The Establishment Wing deals with Cadre Control & Establishment matters of Technical Telecom Cadres, i.e., Cadre Review, framing/ amendments of Service Rules etc., Cadre Control & Service matters of the P&T BWS Cadre, Policy matters involving pay & allowances, Policy matters related to retirement benefits including issues arising out of absorption of DoT employees in BSNL and MTNL, matters relating to pension and allied matters from various DoT units, Pension/family pension revision, restoration of pension cases etc.

Personnel Wing deals with Service matters of Technical Telecom Cadres of Group 'A' and Group 'B' including Direct recruitment, Transfer, posting, promotion, Disciplinary cases of Administrative nature, performance Management, financial upgradation and deputation of Technical Telecom Cadres (ITS, TTS, GCS and TES Group-B) of the Department. It also deals with Residual Service matters of BSNL/ MTNL absorbed employees prior to their absorption and Cadre control functions in respect of unabsorbed employees of BSNL/ MTNL belonging to Group 'C' and 'D' cadres.

Staff Relations (SR) Wing deals with matters relating to Reservation Policy, the welfare of SCs/ STs/ OBCs and PwDs, Parliamentary Committee matters, handling Grievances relating to SC/ ST/ OBC/ physically handicapped, Accessible India Campaign/ Sugmya Bharat Abhiyan related matters under RPwD Act – implementation, matters regarding Staff Unions/Associations, recognition of Service Associations under CCS (RSA) Rules, Estate matters i.e. retention policy guidelines and residual matters relating to staff quarters and rented buildings of BSNL/MTNL. Some of the major works undertaken by the division include:

- Finalization of ICT Accessibility Standards for Persons with Disabilities (PWD) on the basis of TRAI recommendations for making ICT accessible for persons with disabilities in coordination with various Ministries/Departments/ Organizations.
- Issuance of guidelines/instructions to TSPs for provisioning of telecom services to persons with disabilities and which, inter-alia, includes capturing of PwD status in respect of new connections, segregation of existing customers into PwDs and non-PwDs, assigning of a special category numbers to such identified PwD customers and priority base routing for providing customer services to PwD customers in coordination with AS wing of DoT.
- As part of Accessible India Campaign/ Sugmya Bharat Abhiyan, making barrier free and accessibility of Built-Up Environment in all important government/public buildings under the administrative control of DoT and its attached CPSEs in coordination with DePWD.

4.2.5 Service Unit (SU) Division

The SU Division handles all the matters pertaining to ITI Ltd and TCIL, including parliamentary matters, processing of Cabinet Notes, Digital Communication Commission memos, activities related to setting up, review and evaluation of annual MoU targets, allotment of budgetary grants under ITI's revival plan, monitoring its progress, affirmative vote requests, special resolutions, annual general meeting resolutions, board agenda items, processing of legal cases/audit paras and PG/VIP cases, issues related to land assets, issues related to listing of PSUs in stock market, further Public Offers (FPO) and disinvestment etc. Further the Division also handles the residual matters of three companies- M/s HTL Limited, in which Government of India has 26% stake, M/s Tata Communications Ltd. (erstwhile VSNL), which has been completely disinvested in March, 2021 and M/s Hemisphere Properties India Limited (HPIL), which has been transferred to Ministry of Housing and Urban Development.

SU Division, is also responsible for implementation of 'Synergy Initiative' of Department of Telecommunication by ensuring synergy among the PSUs and other organizations of DOT, with the objective of optimum utilization of resources and strengths of these organizations, in building a robust & secure telecommunication and information infrastructure

The significant achievements of SU Division are as follows:

- M/S TCIL has paid Rs. 21.11 Crores dividend to Government in this financial year. The cumulative dividend paid by M/s TCIL in last 10 years is Rs. 91.85 Crores.
- M/s ITI has geared up to take a larger role in telecom manufacturing and service sector. The company has turned around with investment made by the Government under Revival Plan 2014 and made profits for last three years. It is not dependent on any grants from the Government and sustains business on its own. This year, it bagged large projects of national interest like providing Broad Band connectivity across the state of Tamilnadu, at a cost of Rs.432 Crore, under Tamil Nadu Fibrenet Corporation Limited (TANFINET), Data Center of Indian Air Force, etc.
- An institutional mechanism for synergy between C-DOT and ITI Ltd. has been formed for promoting indigenous manufacturing.
- Synergy Unit has also taken up the initiative with MEA for promoting C-DOT technologies abroad & showcasing India's strength in telecom technologies.
- For future, the Synergy Unit has been mandated with carried out 'Whole of Government Approach' involving other organizations/CPSEs such as BEL, ECIL etc.

4.2.6 Public Interface Divisions

The Public Grievances (PG) and PHP Divisions, under Member (Services), provide an interface for public to raise their concerns, complaints, suggestions and general feedback. Details of PG

Wing are in Chapter 7.

PHP Wing deals with the matter of Telephone Advisory Committees (TACs) which are an institutional mechanism to provide an interface between telecom consumers and BSNL/ MTNL for suggesting measures to improve efficiency of telecom services and to ensure public participation in development of telecom services. All the Hon'ble MPs, who are not Ministers, are member-cum-chairperson of the corresponding TAC falling under their parliamentary constituencies. Each Hon'ble MP recommends 5 members from his/ her constituency to the respective TACs.

PHP-division also deals with the policy matters for provision of service telecom facilities to DoT offices/ officers/ officials and retired DOT employees. As a Telecom service providing unit, it is dealing with sanction for provision of service Telecom facilities to all DoT Offices/ officials like Land line, leased line, Mobile services connection, Data cards, Broadband facilities, concessional telephone connections located throughout the country.

4.2.7 R&D and Standardization

The C-DoT and Telecommunication Engineering Centre (TEC), under the administrative control of Member(S), are responsible for the Research & Development and standardization, testing, certification in the field of Telecom. Both the organisations are giving impetus to the Atmanirbhar Bharat initiative of the Government by developing indigenous technologies and providing an enabling ecosystem for the Indian telecom sector. Detailed information on TEC is in this chapter and CDOT in chapter 5.

4.3 OFFICE OF MEMBER (FINANCE)

- i. **Member (Finance)** is member of DCC and the ex-officio Secretary to the Government of India in the DCC, and representing Ministry of Finance while exercising the power for Govt. of India for incurring expenditure subject to the general budgetary approval of the Parliament through the Minister.
- ii. Member(F) deals with the work of mobilization of resources, licensing and spectrum policy, revenue assessment, revenue collection and spectrum auction.
- iii. Member(F) is also responsible for the Foreign Investment Promotion in Telecom Sector by approval of proposals seeking FDI in the Telecom Sector as per the extant FDI policy.
- iv. Member(F) is thus, responsible for overseeing the work of Finance, Budget, PSU Finance, Establishment and Training, Licensing Finance Policy, Wireless Planning Finance and Foreign Investment Policy and Promotion divisions of DoT. The accounting and auditing function of Department of Telecom are also being overseen by Member(F).

- v. The work of field offices of DoT viz. Controller of Communications Accounts (CCAs) is being monitored by Member(F) through Controller General of Communications Accounts(CGCA).
- vi. Member(F) is also entrusted with the cadre control of Indian Post & Telecommunication Accounts and Finance Service (IP&TAFS) Gr.'A' and Gr.'B'.

Office of Advisor (Finance):

The office of Advisor (Finance) is entrusted with the responsibilities and duties as under:

- i. To ensure that the schedule for preparation of budget is adhered to by the Ministry and the Budget is drawn up according to the instructions issued by Finance Ministry from time to time;
- ii. The office ensures that complete departmental accounts are maintained in accordance with the requirements under the General Financial Rules. It should, in particular, be ensured that the Ministry not only maintains account of expenditure against the Grants or Appropriations directly controlled by it but also obtains figures of the expenditure incurred by the subordinate offices so that the Ministry has a complete month to month picture of the entire expenditure falling within its jurisdiction;
- iii. To advise the Administrative Ministry on all matters falling within the field of delegated powers. This includes powers other than those devolving on a Ministry in its capacity as Head of Office. It has to be ensured by I.F.A. that the sanction issued by Administrative Ministry in exercise of delegated powers clearly indicates that they issue after consultation with I.F.A

Units under Member (Finance):

a) Establishment & Asset Management Division:

- i. The Establishment Division deals with Staff, Establishment and Administration of IP&TAFS Gr. "A" and Gr. "B" officers posted in DoT, DoP HQs and those on deputations along with field & attached offices.
- ii. Supervision and monitoring of field units of DoT i.e. Pr./Controller of Communication Accounts (CCA) direct or through O/o CGCA.
- iii. Asset Management (AM) division is responsible for preparation as well as monitoring of overall asset management policy in respect of Department and related offices as well as Public Sector Undertakings (PSUs) under the administrative control of DoT. Asset Management Division deals with the work of overall monitoring of the land and building assets, inventory management and related valuations. It also deals

with the finalization of policy regarding schedule of accommodation and standards of staff quarters.

- iv. It deals with the asset cases requiring approval of the President in accordance with the Memorandum of Association (MoA) and Article of Association(AoA) of PSUs, handling the work of inter-departmental/inter-ministerial transfer as well as acquisition of land and buildings, retention of land and buildings for DoT Units and other Government offices and management of joint held properties, monitors the work of verification of DoT assets and related matter of schedule of accommodation in respect of DoT field units as well as uploading of data on Government Land Information System (GLIS) portal relating to the land and building under the DoT, work relating to approval of lease/renting of office space/staff quarters as well as estimates for repair/renovation/construction of buildings for DoT and its field offices.

b) License Finance - Policy Division:

Key initiatives & Achievements:

i. Rationalizing Definition of Gross Revenue/ Adjusted Gross Revenue (AGR)

Vide amendment dated 25.10.2021 the definition and methodology for computation of Adjusted Gross Revenue has been changed by introducing the concept of Applicable Gross Revenue (ApGR) to be arrived at by deducting the revenue from non-telecom activities, revenue earned from activities under a license/permission granted by Ministry of Information and Broadcasting, receipts from USO Fund and items of other income from Gross Revenue etc.

The definition and methodology for computation of Adjusted Gross Revenue has been amended based on the TRAI recommendations dated 06.01.2015. The changes in definition of AGR will be applicable to all existing Licensees for period of operations falling after October 1, 2021.

ii. Rationalizing Bank Guarantees (BGs) requirements

This reform aims at rationalizing the Bank Guarantee to be submitted by Telecom Service Providers under the License Agreement. The amount of FBGs held by DoT against License Fee and other dues not otherwise securitized and the PBGs as per the License Agreement, shall be reduced to 20% of the current stipulated requirement.

Further, BGs furnished or required due to any court order, or BGs which are the subject matter of any litigation, will continue such as the BGs for which the DoT has been restrained to encash through a Court order, or BGs related to One Time Spectrum Charges (OTSC) under litigation. Required amendments for

rationalizing the BGs in all the relevant License agreements have been issued on 06.10.2021.

iii. Rationalizing Interest Rate and Penalty

As per the amendment issued on 01.10.2021, any delay in payment of License Fee or any other dues payable under license beyond the stipulated time will attract an interest at a rate which will be 2% above the SBI MCLR existing as on the beginning of the financial year. Interest shall be compounded annually instead of monthly. The clause related to penalty for delayed payments and interest on penalty has been deleted.

c) License Finance- Assessment Division:

i. SARAS: Digitalisation of the largest source of non-tax revenue to Government of India.

SARAS is the new Revenue Management System (RMS) developed by the Revenue Divisions of DoT (License Finance and Wireless Planning Finance) to ease, standardize and automate payment, assessment and reporting of telecom revenue and related ancillary processes. The SARAS project has been envisioned with a goal to not only digitize this process but to usher in a complete transparency of LF and SUC assessment & collection process along with deduction claim process, thereby, bringing in ease of doing business, accountability, transparency and efficient service delivery to the Telecom Industry.

ii. Key initiatives & Achievements:

a) SARAS consists of 15 modules catering to different functionalities. These modules are: Setting up Licensee, LF payment and Assessment (LFA), Deduction Claim and Verification (DVR), SUC payment and Assessment (SUC), Bank Guarantee (BG), Court Case, CAF/EMR, Discussion Board, Knowledge Bank, Grievance, User Management, Master Management, Dashboard, MIS, Budget.

b) SARAS has also been integrated with the following external systems:

- Bharat kosh for collection of payments
- SMS/Email Gateway for sending out notifications to users
- E-sign for signing of documents by TSP users and DoT users

c) Cloud Infrastructure of SARAS

The SARAS Application has been hosted on a cloud platform. The cloud platform for SARAS comprises of both the Data Centre and a Disaster Recovery Centre.

d) Training of SARAS for CCA users & Licensees

Physical training sessions of 2 days each were conducted for all the users of CCA/ DoT offices across 4 zones in the country. Regular refresher trainings are being conducted through online mode since COVID-19 period. CCA offices are conducting training for their respective decentralized Licensees on regular basis.

e) Current Usage by Industry

All Licensees across India are using SARAS for making the License Fee payment since October 2019 onwards for quarterly LF payments in normal course. From Oct 2019 till November 2021, License fee amounting to Rs 52,293 Cr. has been paid by licensees through SARAS.

iii. Current Status of SARAS Utilization

Total Licensees onboarded	1,531
Total Licenses onboarded	3,294
Total number of Demand issued through SARAS	299
Total number of Bank Guarantees	6,710
Value of Bank Guarantees (in Cr)	66,990
Total BG Released through SARAS	101
Value of Bank Guarantees Released through SARAS (in Cr)	1,687
Deduction claim submitted by licensees	611
LF collection through SARAS (in Cr)	52,293
SUC collection through SARAS (in Cr)	7,123

iv. New initiatives under progress:

- a) Implementation of Telecom Sector reforms with respect to Bank Guarantee Management, Statement of Revenue, and assessment calculations.
- b) Development of 33 new MIS for robust data management
- c) Upgradation of SARAS application for promoting transparency and efficient service delivery
- d) Integration of SARAS with SARAL SANCHAR application of DoT for onboarding of new licensees.

d) **Wireless Finance Division:**

Spectrum Usage Charges (SUC) & other receipts is as under: -

(Rupees in crore)

Nature of Receipts	April 2021 To Oct. 2021 (Actual revenue for 7 months)	Anticipated receipts Nov. 2021 to March 2022 (expected revenue for 5 months) (FY 2021-22)	Total receipts in the Financial year 2021-22
Spectrum Usage Charges (SUC)- CDMA+GSM+BWA +VSAT	3755.49	2682.49	6437.98
Deferred (Spectrum auction instalments) payment receipts	10723.19	0.00	10723.19
Spectrum Auction receipts (Upfront Payments)	5686.05	0.00	5686.05
WPC receipts (DDs/e-receipts through NEFT, RTGS/Bharatkosh)	293.76	306.24	600.00
Receipts from BSNL on account of cost of administrative allotted 4G Spectrum	0.00	20410.00	20410.00
Grant Total	20458.49	23398.73	43857.22

e) **USOF Finance Division:**

- USOF Finance wing render advice on all policy matters including formulation, approval and implementation of various schemes.
- It aids in the administration and disbursement of funds for various schemes and guiding the field offices for its implementation and utilisation.
- Inputs in preparation of Digital Communications Commission notes and Union Cabinet notes are provided by USOF Finance wing.
- Preparation of audit replies, forecasting of budget requirements, Coordination of Parliamentary Standing Committees matters are also dealt in USOF Finance wing.

Key initiatives & Achievements:

- Fund utilisation by way of settlement of claims in respect of schemes other than Bharatnet such as mobile tower projects, wi fi projects, submarine underground cable etc.as per extant guidelines and agreements
- Random sample physical verification of the sites is carried out by CCAs

DEPARTMENT OF TELECOMMUNICATIONS

- CCA Tamil Nadu and CCA Kerala to carry out the work of billing and collection of revenue under submarine cables project apart from handling asset management issues related to the project
- The CCAs have carried out Social Impact Assessment in respect of Bharatnet and Mobile tower schemes on behalf of USOF after 1 year of completion of the roll-out of the project/schemes
- As on date, the total disbursement/settlement of claims in respect of schemes other than Bharatnet has been done by CCA offices. It is to the tune of Rs.24,491.64 crores.

f) **Integrated Finance Division:**

- i. Financial Adviser i.e. Member (Finance) of Department is having unique position in the functioning of department. Member (Finance) is having dual role and responsibilities, he is responsible to both to the administrative Ministry/Department and the Ministry of Finance. Thus, having the following mandate: -
 - To support the Secretary of administrative Ministry/Department, M(F) advises administrative Secretaries in Policy formulation with the focus on financial implication of the policy.
 - Represents the Ministry of Finance and make recommendations in departmental goals and objectives in congruence of overall framework laid down by Ministry of Finance.
- ii. Integrated Finance Division under Financial Advisor of DoT i.e Member (Finance) examines and facilitates the implementation of the department Policies/Projects/ Schemes/ other development works and different Projects of TEC, NTIPRIT &USOF with the due financial prudence, in order to ensure that the expenditure from the Government head is done to achieve the intended outcomes defined in measurable and monitorable terms.
- iii. IFD of DoT also advises on delegation of the financial power of administrative head of department time to time as per requirement of the department, to ensure the smooth and faster decision-making at the appropriate level.
- iv. IFD also ensures the implementation and compliance of various instructions/rules issued by the Department of Expenditure on economy/rationalization of expenditure, especially with regard to the Procurement of Goods & Services
- v. In addition, IFD coordinates with GeM on SCoGeM platform to review the payments that are pending beyond 30/60 days, identification of products required, which are currently not on GeM, for listing in GeM. It arranges training programs for staff regularly and periodic interaction session with GeM officials to ensure efficient procurements on GeM. IFD also monitors the use of GeM by all agencies and offices attached to the Ministry/Department and ensures cost efficient procurement.

g) FOREIGN INVESTMENT POLICY AND PROMOTION DIVISION:

- i. Earlier, the Foreign Direct Investment (FDI) Policy 2020 issued by Department for Promotion of Industry and Internal Trade (DPIIT) with regard to Telecom sector stipulated the provisions of allowing 49% FDI under automatic route and beyond 49% up to 100% under the Government approval route subject to observance of licensing and security conditions by licensee as well as investors as notified by DoT from time to time, except “Other Service Providers”, which are allowed 100% FDI on the automatic route.
- ii. The recent reforms for the telecom sector by the Government of India have allowed 100% FDI under automatic route in Telecom sector subject to Press note 3(2020) regarding foreign investments from land bordering countries. Pursuant to this decision, DPIIT has issued Press Note No. 4 (2021 Series) dated 06.10.2021 notifying necessary amendments under the FDI Policy and the amendments under FEMA Rules/Regulations notified by Department of Economic Affairs on 12.10.2021.

Current policy with respect to FDI in Telecommunication sector**TELECOM SERVICES**

Sector/Activity	% of Equity/ FDI Cap	Entry route
Telecom Services (including Telecom Infrastructure Providers Category-I) All telecom services including Telecom Infrastructure Providers Category-I, viz. Basic, Cellular, United Access Services, Unified license (Access Services), Unified License, National/ International Long Distance, Commercial V-Sat, Public Mobile Radio Trunked Services (PMRTS), Global Mobile Personal Communications Services (GMPCS), all types of ISP licences, Voice Mail/Audiotex/UMS, Resale of IPLC, Mobile Number Portability services, Infrastructure Provider Category – I (providing dark fibre, right of way, duct space, tower), Other Service Providers and such other services as may be permitted by the Department of Telecommunications (DoT)	100%	Automatic
Other Conditions: The licensing, security and any other terms and conditions as specified by Department of Telecommunications from time to time, shall be observed by licensee/entities providing services as referred in Para above, as well as investors.		

- iii. Total FDI inflow into telecommunications sector during April, 2000 to September, 2021 was Rs. 2,24,867 Crores. Telecommunications is the third largest sector in terms of FDI equity inflows after Services sector and Computer software and hardware sector as given in Table below: -

Top Three sectors attracting highest FDI equity inflows

(Rupees in crore)

Rank	Sector	2019-20 (April- March)	2020-21 (April- March)	2021-22 (April- September)	Cumulative inflows (April 2000 to September 2021)	%age to Total Inflows
1	Services Sector *	55,429	37,542	23,328	5,32,600	16%
2	Computer software and hardware	54,250	1,94,291	52,634	5,22,932	14%
3	Telecommunications	30,940	2,884	2,794	2,24,867	7%

* Services sector includes Financial, Banking, Insurance, Non-Financial / Business, Outsourcing, R&D, Courier, Tech. Testing and Analysis, Others.

Source: FDI Statistics have been taken from official website of Department for Promotion of Industry and Internal Trade (DPIIT) i.e. dipp.gov.in

- iv.** FDI is an important component of economic growth and an important vehicle for the transfer of technology. It also brings with it considerable benefits through raising productivity, strengthening infrastructure, enhancing competitiveness of the domestic economy and generating new employment opportunities. The telecom sector which grew largely in the recent past has also helped the other sectors to grow through diffusion of information and ideas. Since the telecommunication industry is capital intensive and heavily dependent on technology, FDI in telecom holds the promise of accelerating its growth.
- v.** National Single Window System (NSWS) / Investment Clearance Cell (ICC) is the flagship program of DPIIT implemented across Govt. of India and State Govts. to promote ease of doing business and reduce compliance burden on investors. It is a 'One-stop digital platform' which integrates the existing clearances/approvals of the various Ministries/ Departments. FIPP Division is the nodal Wing for coordinating and implementation of NSWS in DoT and DDG(FIPP) was designated as the Single Point of Contact for NSWS project in DoT.

h) Budget:**i. Important Responsibilities:**

Budget Section is mainly responsible for preparation of the Annual Budget of the Department in the form of Detailed Demands for Grants (DDG), as stipulated under

Article 114 of the Constitution of India. The DDG is prepared in consultation with Budget Division of the Department of Economic Affairs, Ministry of Finance.

ii. **Budget at Glance Statements:**

The following table shows the Gross Budget under Revenue and Capital Sections.

(Rupees in crore)

Section	Actual Expenditure 2020-21	BE 2021-22	Actual Expenditure up to 30.11.2021
Revenue	45154.71	41803.44	19973.45
Capital	8356.11	31133.56	3197.10
Total	53510.82	72937.00	23170.55

iii. **The following table shows the Gross Budget under Revenue Section.**

(Rupees in crore)

Particulars	Actual Expenditure 2020-21	BE 2021-22	Actual Expenditure up to 30.11.2021
USOF (Bharat Net)	5919.79	7000.00	2876.28
USOF (Other than Bharat Net)	1280.21	2000.00	387.47
Transfer to Reserve Fund (USOF)	7200.00	9000.00	3300.00
C-DOT	305.92	325.70	189.89
Pension	14928.94	15350.00	10277.83
Salaries	438.51	556.48	346.39
Incremental Pension payment to voluntarily retiring employees of BSNL and MTNL	3028.26	3000.00	2000.52
Ex gratia payment to retiring BSNL and MTNL Employees	11162.86	0.00	0.00
Grant in aid to BSNL for payment of GST on 4G Spectrum	0.00	3674.00	0.00
TRAI	90.00	100.00	60.00
Interest on MTNL Bonds	383.23	383.21	347.95
Others	417.00	414.05	187.12
Total (Gross)	45154.72	41803.44	19973.45

iv. The following table shows the Gross Budget under Capital Section.

(Rupees in crore)

Particulars	Actual Expenditure 2020-21	BE 2021-22	Actual Expenditure up to 30.11.2021
OFC Network for Defence Services (NFS)	4000.00	5200.00	3069.92
Transfer to Reserve Fund (CRIF) for NFS	4000.00	5200.00	0.00
Equity infusion for ITI Revival	105.00	80.00	0.00
Capital infusion in BSNL/MTNL for 4G spectrum	0.00	20410.00	0.00
5G Test Bed	54.13	0.01	0.00
Establishment of Satellite Gateway Assistance to BSNL	11.52	0.01	0.00
TRAI Building	113.00	110.00	113.00
Others	72.46	133.54	14.18
Total (Gross)	8356.11	31133.56	3197.10

v. Public Sector Finance Division advises the nodal sections of DoT concerned with financial matters for the Public Sector Units/ Autonomous bodies under DoT.

i) **Accounts Division:**

i. **Disbursement of Terminal Benefits**

A) Pension: With the promulgation of Rule 37(A) along with Rule 37 of the CCS Pension Rules, the government plays a critical role in the disbursement of pension to officers and officials of DoT and the erstwhile government servants absorbed in BSNL and MTNL. The Units are responsible for budgeting of pension expenditure, Sanction, authorization and disbursement of retirement benefits on CDA and IDA scale to over 3 lakh pensioners. The updated figures are as under:

Financial Year	No. of Pensioners (in lakh)	Pensioners Pension Disbursed (Rs.In crore)
2017-18 (as on March 31, 2018)	3.24	10804.89
2018-2019 (as on March 31, 2019)	3.69	11991.15
2019-2020 (as on March 31, 2020)	4.39	13138.81
2020-2021 (as on March 31, 2021)	4.67	14928.94

B) SAMPANN (System for Accounting and Management of Pension):

New software for direct disbursement of pension to BSNL and DoT retirees is

developed as SAMPANN-CPMS (comprehensive pension management system). This Comprehensive Pension Management System was inaugurated by Hon'ble Prime Minister on 29th December, 2018 at Varanasi. Thus, SAMPANN integrates the processing, sanctioning, authorization and payment units under a common platform, facilitating direct credit of pension to the accounts of pensioners. 102215 Pensioners are benefited and amount of Rs. 14487.5 crores has been disbursed as pension. Bank data migration to CPMS of old pensioners is under process.

C) BHAVISHYA Portal:

It is an online Pension Sanction and Tracking System implemented by Department of Pension and Pensioner's Welfare, GOI. More than 90 Ministries are using this portal for its retiring employees. The Pension authorization, payment of gratuity/ commutation of pension in respect of the inter-ministerial staff working in DoT has been shifted to BHAVISHYA Portal w.e.f. 01 September, 2021 and all sanctions / PPO are issued online through PFMS.

ii. Key initiatives & Achievements:

A) Revamping of Heads of Accounts relating to DoT (Shifting from MH- 1275/3275/5275 to MH-1225/3225/5225) : The proposal for revamping the Heads of Accounts of DoT was under taken as per the advice of C&AG to change the nomenclature of MH-1275-Other Communication Services, MH-3275- Other Communication Services, & MH-5275-Capital outlay on Other Communication Services as per new role of DoT as an arm of the Government, as these heads of accounts are in operation since the formation of BSNL.

B) Budget Wing of DoT has 'vetted' and conveyed its 'No Objection' for proposed revamping of heads of accounts and with the approval of Member (Finance) revamping of Heads of Accounts relating to DoT (Shifting from MH- 1275/3275/5275 to MH-1225/3225/5225) will take place w.e.f 01.04.2022 (Financial Year 2022-23).

C) PFMS (Public Financial Management System)

DoT implemented PFMS from 1st January, 2017. The Budgeting, accounting, processing and movement of bills and payment through designated banks have been automated in all the CCA offices.

D) NTRP (Non-Tax Receipt Portal)

The Electronic Receipt (e-receipt) system for accounting of DoT revenue, has been enabled 100 % in DoT HQ. All the CCA offices w.e.f. 17 January, 2017 through NTRP, which is a single window, online payment portal for payment of Revenue of Government of India.

j) TELEPHONE REVENUE (TR/TARIFF/TR-AUDIT DIVISION):

Item of work dealt in Telephone Revenue (TR/Tariff/TR-Audit-Section):

- Payment disputes between CPSEs are settled through Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD).
- Complaints of general nature relating to Telephone Revenue received on PG Portal of DDG (B&PEF) Division.
- Monitoring of Arbitration cases relating to Telephone Billing disputes, under Section 7B of ITI Act 1885 dealt by all CCAs.
- Timely submission of periodical returns relating to Telephone Revenue and Tariff.

k) Training Finance Division:

- i. Training Finance Wing DoT HQ is dedicated section for conduction of various training programmes for IP&TAFS Group 'A', B & Group C. It has an attached subordinate office – NICF (National Institute of Communication Finance). Training Finance Wing DoT HQ has been deputing officers to attend various training programmes organized by National Productive Council and Management Development Programme (MDP) through IIPA, NIFM, MDI, IIMs etc. with national and international universities. The Wing also nominates officers for various training programmes conducted by NICF, DoP&T viz. APPPA, AMPPP etc. and other institutions like NDC etc.

Key initiatives & Achievements:

- ii. Training Finance Wing organized an interactive session at Election Commission of India for IP&TAFS officers with Hon'ble Chief Election Commissioner Sh. Anup Chandra Pandey and Deputy Election Commissioner Sh. Dharmendra Sharma.



Training Finance Wing organized an interactive session at Election Commission of India for IP&TAFS officers with Hon'ble Chief Election Commissioner Sh. Anup Chandra Pandey and Deputy Election Commissioner Sh. Dharmendra Sharma

iii. TNA (Training Need Analysis)

Training Finance Wing DoT HQ in synergy with NICF is continuously conducting TNA (Training Need Analysis) with stakeholders which are O/o CCA (Controller of Communication Accounts Department of Telecom) and GM (Finance) & DA(Postal) (from Department of Posts) for ever-changing training requirements and chalking out plans to meet these requirements at various levels of organization.

TNA of North East Region, Jammu & Kashmir Region and Punjab/Haryana and Himachal Pradesh has already been conducted. The outcomes of the meeting specific to the region have been incorporated by NICF in its future trainings.

iv. Mission Karmayogi (I-GOT):

Training Finance Wing, DoT HQ is also working to enrich iGOT platform by onboarding course content which ultimately will provide the strength to the “Mission Karmayogi”.

- v.** Training Finance DoT has uploaded its first training course on Retirement planning on Government employees on iGOT and developed second course on Bank Reconciliation. Over 600 officers have been onboarded on Mission Karmayogi. A Review from DoP&T on the course has been received which is very encouraging. Further, Training Finance Wing is also working towards on Creation of more teams for content development on specific topics.

4.4 DIRECTOR GENERAL TELECOM (DGT)

The office of Director General Telecommunications is an attached office of DoT and headed by an apex level officer. The post of DGT was created with the objective of monitoring and controlling the Department’s field units in all the 22 Licensed Service Areas (LSAs) located across the country. Headquarters of Director General Telecommunications (DGT-HQ) is located in Delhi.

At present, there are 36 field units in 22 LSAs located across the country. The LSA officers represent the licensing / telegraph authority in the field. The LSA field units play an important role as an interface between the State Government and DoT for activities such as Right of Way issues, Smart City coordination, IPv6 implementation, improving the coverage in uncovered areas, etc., The LSA field units function as an interface between Law Enforcement Agencies and the Telecom Service Providers in the matters related to National Security. The LSA field units also play a crucial role in implementation of time synchronization across the telecom network, inspection of USO funded sites, National Broadband Mission to provide each and every household with broadband connectivity, using telecom analytics for protecting consumers from Cyber Frauds, etc.

The tasks performed by various verticals are as under:

4.4.1 Compliance Vertical

- (i) Monitoring of compliance to prescribed norms regarding acquisition of subscribers:**

As per license terms & conditions, the Licensees are required to ensure adequate verification of each and every mobile customer before enrolling him as a subscriber. The LSAs conduct the CAF audit on sample basis.

LSAs have audited 97.76 lakhs of CAFs from 01.04.2021 till 30.11.2021 across all TSPs.

- (ii) **Checking of compliance to Electro Magnetic Field (EMF) radiation norms:** LSAs verify the prescribed EMF self-certificates submitted by TSPs and also check the EMF radiation exposure levels of up to 10% of Base Transceiver Station (BTS) annually on random basis. In case of non-compliance of EMF radiation norms by TSPs, penalty on the concerned TSP(s) is levied by LSAs. Due to the COVID-19 situation across the country, LSAs have been asked to fix their quarterly target of BTS Audits during FY 2021-22 based on the local prevailing situations. LSAs have audited 32,796 BTSs from 01.04.2021 till 31.10.2021 across all TSPs.
- (iii) **Tarang Sanchar Portal** is a web portal to disseminate the information to the public regarding EMF radiation and to allay the misconceptions and fear of health issues due to EMF emissions from mobile towers. It has the details of Telecom Towers with BTSs spread across the country catering to various technologies (2G, 3G and 4G) of all TSPs licensed by DoT. Through the portal, any person can request for EMF emission measurement at a location by paying a nominal fee of Rs 4000/- online. During the period from 01.04.2021 till 30.11.2021, a total of 77 EMF Measurement requests have been received by LSAs through Tarang Sanchar Portal. The tests are conducted by the local field unit of DoT and the test report is provided to the requestor.
- (iv) **Service testing for checking Roll-out obligations:** As per the license agreement all the Access Service Licensees are required to roll-out their services within prescribed time periods and offer Districts/Blocks/Towns on sample basis for test of the quality/ coverage and other parameters by DoT which is termed as Service Testing. LSAs have carried out service testing to check Roll-out obligations of 509 towns for period from 01.04.2021 to 31.10.2021 across all TSPs.
- (v) **Fiberisation of BTSs:** To address demands of large bandwidth as the average data consumption for each subscriber is continuously increasing and to facilitate BTSs to have robust backhaul to cater to high volume data requirement and better quality of services, there is need to enhance the number of BTSs connected on fiber. At present, out of 2302556 BTSs as on 30.11.2021, a total of 7,87,370 number of BTSs are connected on fibre (34.1%).
- (vi) **Monitoring of QoS:** LSAs have been mandated to conduct drive test to monitor QoS biannually i.e., one drive test from April to September and another drive test from October to March in all the cities where the field offices are located. Based on the drive test carried out by LSAs, LSAs identify problematic spots/routes; take follow-up action with TSPs for optimization and improvement of networks on these spots/routes.

4.4.2 Technology Vertical

- (i) **PM-WANI (PM Wi-Fi Access Network Interface):** PM-WANI is a prestigious project to accelerate the proliferation of broadband across the length and breadth of the country through Public Wi-Fi networks which is a step towards Digital India and takes forward the goal of National Digital Communications Policy - 2018 (NDCP) of creating a robust digital communication infrastructure in the country. As per the framework and guidelines for registration issued by DoT HQ, LSAs are registering the PDOAs (Public Data Office Aggregators) and App providers.
- (ii) **Delegation of signing of ISP licence agreement:** In July 2020, DoT has delegated the signing of Unified Licence Agreement (UL) and Unified Licence (Virtual Network Operators) (UL VNO) of ISP Authorization of Category "A", "B" and "C" at field offices of DOT i.e. at LSA office of respective Telecom Service Area.
- (iii) **Inspections of TSPs/ Subscribers:** LSAs are, inter-alia carrying out inspections of UASL/CMTS/Basic/UL/NLD/ILD/ISPs/OSPs/IP-1s/VSAT etc. licensees, for checking compliance to terms and conditions of their license/ registrations. 648 retailers/Distributors and 41 Warehouse inspections carried out during period from 01.04.2021 till 30.11.2021.
- (iv) **Implementation of Short Codes/ Helplines:** LSAs coordinate with TSPs and concerned authorities to which the Short Code has been allocated by Licensing Wing for its implementation.
- (v) **Testing of 5G Trial networks by DGT LSA field units of DoT:** LSAs have engaged with DCT (Digital Communications Technology) stakeholders viz. Start-ups/SMEs, CoEs, Incubation centres, State govt. departments etc. and have extended necessary facilitation for Technology ecosystem such as 5G, IoT/M2M etc. DoT-HQ had issued 5G Technology Trials licenses to Telecom Service Providers (TSPs) and 5G Trials network & Use cases are being deployed in collaboration with OEMs, a step towards deployment of commercial 5G services to better serve the diverse Indian community.

The LSA field units of DoT where 5G technology trials networks are being deployed are carrying out the following functions on proactive basis:

- Facilitating TSPs for operationalizing 5G Trials to enable successful demonstration of Indian specific 5G Use Cases in co-ordination with State Government Departments/Local authorities.
- Co-ordinating with TSPs for Integrating indigenously developed products/ applications including 5G Hackathon solutions in trials networks
- Testing and verifying the performance parameters of trials network & 5G use cases, as per Test Schedule and Test Procedure finalized by TEC in collaboration with representatives from DoT-HQ MeitY, DST, NSCS, IB/MHA,

WMO/WPC, State Government Departments, domain experts from the user/sectoral ministries depending upon the use case deployment and evaluation parameters.

- (vi) **Surveillance implementation in LSA field units as per Mandatory Testing and Certification of Telecom Equipment (MTCTE) Rules:** Indian Telegraph (Amendment) Rules, 2017 notified in Gazette of India inserted Rule 528 to 537 under G.S.R. 1131(E), amended vide gazette notification dated 5th September 2017 (PART XI: TESTING AND CERTIFICATION OF TELEGRAPH) prescribes for mandatory testing and certification of any telegraph which is used for capable or being used with any telegraph established, maintained or worked shall have to undergo prior mandatory testing and certification. The MTCTE Procedure notified for implementation of these rules provides that the Telegraph Authority/Appropriate Authority (AA) reserves the right to inspect and/or test any telegraph, which requires mandatory certification at any time and at any premises including sites where it is in use or at the place of manufacturing to ensure that the telegraph used/sold has required certifications and/or conforms to the Essential Requirements of existing certifications. In this regard, Heads of LSA Field units of DoT are designated as Telegraph/ Appropriate authority for surveillance implementation and follow up in the field. The surveillance is to be carried out to monitor and enforce the compliance of MTCTE as required under Indian Telegraph Rules. The concerned telecom service providers/licensees of DoT have also been sensitized through respective LSA field units to enforce compliance to the MTCTE.

4.4.3 Security Vertical

- **Lawful Interception and National Security:**

- (i) Centralized Monitoring System (CMS) has been implemented with the approval of Cabinet Committee on Security (CCS) with Government funding of Rs. 400 crore. The system facilitates Ministry of Home Affairs, Central Law Enforcement Agencies (LEAs) and State Police for automated Law-full interception and monitoring process. The system has core component CMC (Centralized Monitoring Centre) at C-DOT campus Delhi with a Disaster Recovery unit at Bengaluru. The CMC is regionally connected on MPLS network with 21 Regional Monitoring Centres which in turn are connected to TSP equipment.
- (ii) The LSAs are also acting as technical interface between Security Agencies and Telecom Service Providers and assist in matters related to National Security. They also help in providing information related to the Customers, CDRs, exchange records etc.
- (iii) LSAs also act on various communications received from Law Enforcement Agencies (LEAs) and Security Wing of DoT regarding spillage of mobile signals from neighboring countries into Indian Territory, deactivation of mobile numbers, checking misuse of ID documents & mobile numbers, etc.

- (iv) LSAs conduct monthly coordination meetings with various stakeholders for closer interaction and to resolve the issues.
- (v) This system is operational on pan India basis.

- **Grey market/Clandestine Operations:**

- (i) LSAs carry out investigation to curb illegal operations (not permitted under Indian Telegraph Act), which pose threat to National Security, in coordination with LEAs. LSAs also take action for unearthing the illegal telecom setups based on the information received from DoT call centre Haryana and the subsequent analysis of CDRs, IMEIs and reccy of suspected premises with the help of local police, before busting the frauds. LSA field units file FIR against the culprits, pursue the case and issue notices indicating violation of conditions of various Acts. LSAs have unearthed 145 cases of illegal set ups w.e.f. January, 2014 till November, 2021.
- (ii) The LSAs are coordinating for handling non- genuine IMEI cases and providing support in implementation of CEIR (Central Equipment Identity Register)

- **Security Audit of TSPs and ISPs:**

LSAs carry out the Security Audit of TSPs/ISPs for security compliance of various security norms prescribed in Indian Telegraph Act and License Agreement. LSAs have done 60 Security Audits during the period of 01-04-2021 to 30-11-2021.

- **Citizen centric approach to reduce the cybercrimes:**

The citizens, when they receive a fraudulent call suspected to be a cybercrime, report the said number either to the local police authorities, call on helpline number 155260 or report online on National Cyber Crime Reporting Portal (URL - <https://cybercrime.gov.in/>). The LSA field units under the control of DGT actively analyse the suspected numbers and takes necessary action after the CAF audit, connection verification, etc.,

- **URL Blocking:**

Government of India issues instructions to ban web sites, URLs and APPs which pose threat to the national security. The LSA field units had successfully assessed the effectiveness of blocking of the said APPs / URLs / Websites. The feedback along with the deficiencies have been highlighted for corrective steps.

- **Cable Landing Stations Audit**

17 Cable Landing Stations of ILD service providers (M/s Reliance Jio Infocomm Limited, M/s Tata Communications Ltd., M/s Vodafone Idea Limited, M/s Reliance Communications Limited, M/s Bharti Airtel Ltd, M/s Bharat Sanchar Nigam Ltd., M/s Sify Technologies Limited) being audited by Mumbai, Tamil Nadu and Kerala LSAs. 16 out of 17 Cable Landing Stations have already been audited.

- **Marine route survey for data collection:**

- **MIST submarine cable system:** Marine Route Survey for data collection of Myanmar/Malaysia India Singapore Thailand (MIST) submarine cable system for M/s NTT Communications India Network Services Pvt. Limited with Vessel Albatross 05 between Mumbai and Chennai was done by Mumbai and Tamil Nadu LSAs' officials after mandatory safety training for on-boarding on Survey Vessel Albatross 05. The survey involved over 1750 km of route comprising of diving, shallow, inshore and deep water. Survey completed in Nov, 2021.
- **IAX/IEX submarine cable system:** Marine Route Survey for data collection of India Asia Xpress (IAX) and India Europe Xpress (IEX) Submarine cable system for M/s RJIL with Vessel Northern Endeavour between Mumbai and Kolkata is in progress and is expected to be completed by April, 2022. Team from Mumbai, West Bengal and Tamilnadu LSAs are involved and have undergone mandatory safety training for on-boarding on Survey Vessel Albatross 05.
- **KLI submarine cable system:** It is an USOF project for provision of submarine OFC connectivity between mainland India (Kochi) and Lakshadweep Islands (KLI) and proposed to be utilised by the TSPs. BSNL is the implementing agency. The survey is in progress by KRL LSA team after getting mandatory safety training for on-boarding on Survey Vessel Albatross 05. The entire project is scheduled to be commissioned by Sept, 2023.

Projects undertaken by Security Vertical, DGT:

Project “Telecom Analytics for Fraud management and Consumer Protection” (TAF COP): As part of the license conditions, the TSPs on behalf of the Licensor, provide telecom numbering resources to various subscribers/ customers limited to nine connections. The TAF COP portal has been developed to help in identifying individual customers with greater than nine connections and also, help in identifying the connections which are potentially suspected to be involved in cybercrimes. Thus, on implementation of this project, the veracity for reduction in frauds using telecom resources will be improved, which directly protects the interests of consumers.

This project was launched by DGT in the presence of Member (Technology), Digital Communications Commission on 9th December 2020.

At present all 22 LSAs have uploaded the Subscriber database and have started using TAF COP portal for analysis a subscriber data base. LSAs have found many individual bulk connections. In these cases, appropriate action is being taken by concerned LSAs as per prevailing guidelines.

In addition, TAF COP Portal has been opened to the public of AP LSA on pilot basis to enable them to check the mobile connections issued based on their PoA/Pol.s,

only for APLSA, on 19-04-2021.

- **Project for graphical visualization of pan-India mobile coverage– RF Coverage portal:**

Presently, the mobile coverage in the villages/habitations is based on the LSA wise information given by various TSPs. The graphical visualisation of overall coverage taking in to account the coverage from all TSPs will help us knowing the availability of mobile coverage in all the potential points of requirement (PPoR) in the village such as schools, colleges, PHCs, Post offices, Government offices, potential accident spots, anganwadis, Ration shops, cooperative societies and so on. A village should be declared as covered only when maximum number of PPOs in the village is having good coverage so as meet the requirement of Digital India Mission. In short only if a certain percentage of the village is covered, it should be treated as mobile RF covered.

RF coverage portal has been developed for graphical visualisation of pan-India mobile coverage. In this portal, the coverage is based on prediction maps obtained from TSPs clipped over the village boundary shape files given by the state government. Apart from this, the portal takes inputs from crowd sourcing apps and mathematical modelling of coverage etc. There will also be an Artificial Intelligence tool built in to predict the RF coverage across the country through development of a Golden Model.

RF Coverage portal has already been developed and has been opened to all the LSAs. All LSAs have uploaded at least one TSPs prediction maps and the % coverage of the villages are available for all 22 LSA except for a few smaller States.

As a part of National Broadband Mission (NBM), DoT has plan for covering all the left out Potential points of Telecom Requirement, either by coordinating with TSPs or through USOF fund so as achieve blanket telecom coverage at all PPOs.

- **‘Cell on Balloons’ (CoBAL) project:**

Government investment in broadband infrastructure has largely leaned towards deployment of Optical Fiber Cable (OFC) networks, which are point- to-point high-speed networks and not suitable for delivery of broadband to remote and terrain constrained geographical parts of the country.

Among the various popular technologies for providing connectivity in such remote areas, one of the prominent technologies is provision of mobile coverage through ‘Cell on Balloons (CoBAL)’. Such technology could either be standalone or tethered. One such pilot project is being implemented in Nurmathi village of G. Madugulamandal in Visakhapatnam district. The project is a jointly coordinated with the State Government and the APFSL along with the DGT’s field office at Vijayawada. It will have a tethered balloon flying at an altitude of around 500 mtrs and estimated to provide mobile coverage to around 20 villages.

The Proof-of-concept (PoC) for this pilot project has been completed and the first

phase will be commissioned in Jan, 2022. This will be with Wi-Fi payload using the balloon flying at an altitude of 50-80 mtrs and covering an area of 2 km. On successful implementation of this PoC, the same shall be tested using balloon flying at 400-500 mtrs altitude and carrying different payloads including LTE, WiFi, etc.

4.4.4 Rural Vertical

- i. **RoW related issues:** The Government has notified the Indian Telegraph Right of Way Rules, 2016 to regulate underground infrastructure (optical fibre) and over ground infrastructure (mobile towers). This rule is applicable to all telecom service providers holding a license issued under sub-section (1) of section 4 of the Indian Telegraph Act, 1885. These rules have simplified the grant of right of way permissions for creation of telecom infrastructure by making it transparent and time-bound. All States/Union Territories and the concerned Central Government Departments/Agencies have been asked to align their Right of Way policies with the IT RoW Rules, 2016.

LSA field Units are pursuing with concerned State/UT Government for formulation of State RoW Rules aligned with Indian Telegraph Right of Way Rules, 2016. So far, 19 States/UTs have largely aligned, 12 States/UTs have partially aligned and rest of the States/UTs are in the process to accomplish the task.

- ii. **DBT (Direct Beneficiary Transfer):** Telecom infrastructure, being an underlying part of DBT infrastructure, is very crucial to achieve the missions of DBT. DoT is on the mission to provide robust mobile and fibre connectivity to all the villages of India. This will also enable the Financial/banking institutions to open their branches/ATMs especially in rural areas. In order to achieve the goals, DDG (Rural) in each LSA office, located at state capitals, has been nominated as the state level coordination officer from DoT for coordinating with state level banking committees (SLBCs) to resolve any network issues faced by financial institutions in providing DBT service. In this regard, LSAs are attending the SLBC meetings and coordinate with the TSPs for the resolution of the network/connectivity issues in implementation of the DBT mission. In addition, DoT office is coordinating and cooperating with DBT mission to ensure connectivity to unbanked villages across India.
- iii. **National Broadband Mission (NBM) Project:** The Department has launched 'National Broadband Mission' (NBM) as a part of National Digital Communications Policy, 2018 on 17.12.2019 with a Vision "Broadband for All" to enable fast track growth of digital communications infrastructure, bridge the digital divide for digital empowerment and to provide affordable and universal access of broadband for all. All the LSA field units under the control of DGT have coordinated with the respective State Governments for formation of State Broadband Committee (SBC) in all the 36 States/Union Territories. 1st meeting of SBC has already been held in 31 States/UTs.

The LSA field units are coordinating with the State Governments for collection of the details of all habitations, hamlets, etc., to assess the coverage status and suggest remedial measures to provide broadband coverage to the uncovered areas as part of the mission.

4.4.5 Admin Vertical: -

Handling of VIP references: DG Telecom office provides resolution of the issues raised by VIPs (Central/ State Ministers, MPs, MLAs, CMs etc.) in respect of Telecom services in the country. During the period of 01.04.2021 to 30.11.2021, approximately 50 VIP references were disposed off.



Inauguration of 1st edition of DGT Newsletter “Sanchar Samvaad” on 10th November 2021 by Shri K. Rajaraman, Secretary, DoT

4.5 WIRELESS PLANNING AND COORDINATION

The Wireless Planning and Coordination Wing (WPCW) of DoT is the nodal authority for planning, regulation, coordination, authorization and management of radio frequency spectrum in the country. International coordination for spectrum management and associated satellite orbit, including Geo-Stationary Satellite Orbit (GSO)/Non-Geo-Stationary Satellite Orbit (NGSO) are administered under the provisions of the Indian Telegraph Act, 1885 (13 of 1885) and the Indian Wireless Telegraphy Act, 1933, for licensing radio communication systems. The Wireless Monitoring Organisation (WMO) functions under the WPCW of DoT. The major functions of WMO are derived from the Radio Regulation of the International Telecommunication Union (ITU) including monitoring/ measurement of Radio Spectrum usage to ensure interference free radio-communication environment in the country.

4.5.1 Satellite Licencing

Frequency assignments for satellite-based communications network including V-SAT, NLD, ILD, Inmarsat, Teleports, DTH, DSNG, HITS etc and permissions for operation of TV channel up linking have been issued to service providers /users /departments. Frequency assignments for in Flight and Maritime Connectivity (IFMC) have also been issued to IFMC service providers, as under:

Information for the period 01/04/2021 to 30/11/2021

1.	New Wireless License Scheduled issued	30588
2.	No. of Licenses Scheduled renewed	212
3.	No of New frequencies assigned	25

Anticipated Information for the period from 30/11/2021 to 31/03/2022

1.	New Wireless License Scheduled issued	4120
2.	No. of License Scheduled renewed	80
3.	No. of New frequencies assigned	15

4.5.2 Satellite Coordination

International coordination of satellite systems is undertaken under the provisions of the Radio Regulations (RR) of the ITU. Coordination of frequency assignments for the individual satellite networks is essential with satellite networks of other administrations for mutual coexistence and interference free operations of these networks.

4.5.2.1 Satellite Coordination with other Administrations: Coordination proposal have been sent to various administrations for coordination of IND-SATS-93.5E, INSAT-KU12(63) E, INSAT-NAVR-GS and INSAT-KA series satellite networks of India. Coordination with EGY-N-SAT of Egypt and USOBO-7B & GOES-series satellite networks of United States is in progress. Coordination was completed with EGJAN1A satellite network of Egypt.

4.5.2.2 Coordination with ITU: Details of Special Sections published in BR IFIC is provided as under.

4.5.2.2.1 Notification & Due Diligence for Indian Satellite networks (Total: 47 Nos.):

(i)	Special Section Part I-S published	:	22 Nos
(ii)	Special Section Part II-S published	:	20 Nos
(ii)	Special Section Part III-S published	:	3 Nos
(iv)	Due Diligence submitted	:	2 Nos.

4.5.2.2.2 Coordination request Filings for Indian Satellite networks (Total: 18 Nos.):

(i)	Special Section CR/C published	:	12 Nos
(ii)	Special Section CR/D published	:	05 Nos
(ii)	Special Section CR/E published	:	01 Nos

4.5.2.2.3 Advance Publication of Information for Indian Satellite networks (Total: 23 Nos.):

(i)	Special Section API/A published	:	11 Nos
(ii)	Special Section API/B published	:	08 Nos
(ii)	Special Section API/C published	:	04 Nos

4.5.2.2.4 BSS Plan as per Appendix-AP30/30A & FSS Plan as per Appendix 30B (Total: 08 Nos.):

FSS plan band (AP30B) filing in respect of IDRSS-PFSS-42.5E and IDRSS-PFSS-148.5E satellite networks has been published in BRIFIC 2950. BSS plan band (AP30/AP30A) filings Part-B and Notification for INSAT-KUP-BSS(83E) was submitted to ITU and published in BRIFIC 2949. A new BSS Plan AP30/AP30A filing for INSAT-KUP-BSSR(83E) has also been submitted to ITU and Part-A was published in BRIFIC 2954.

4.5.2.3 Satellite filings submitted to ITU for publication in BRIFIC (Total: 9 Nos):

API/A:	ADITYA (MOD), INS-2 (MOD)
CR/C:	IDRSS-NPB-42.5E, IDRSS-NPB-240E
AP30B:	IDRSS-PFSS-240E
Part I-S:	INSAT-EXC(129.5E), INSAT-EXC(48E), INSAT-EXC(82E) and INSAT-EXC55E

4.5.2.4 Protection of Indian space and Radio Astronomy Service from the satellite networks of other countries. (Total Objections: 336)

Special Section Published in BRIFIC	Administrations whose satellite networks were objected in view of existing and planned Indian satellite networks.
API/A(71 Objections)	Belarus, Brazil, Bulgaria, Canada, China, Czech Republic, France, Finland, Germany, Israel, Italy, Japan, Lithuania, Luxembourg, Norway, Pakistan, PNG, Poland, Rwanda, Singapore, Solomon Islands, Spain, Thailand, UAE, UK, USA
CR/C(232 Objections)	Argentina, Australia, Azerbaijan, Belarus, Canada, China, Egypt, France, France/GLS, Germany, Indonesia, Iran, Israel, Japan, Korea, Luxembourg, Malaysia, Netherlands, Norway, Oman, Pakistan, PNG, Qatar, Romania, Russian Federation, Rwanda, Saudi Arabia, Solomon Islands, Spain, Sweden, Thailand, UAE, UK, USA and Vietnam
Part I-S (13 Objections)	Australia, France, Indonesia, PNG, Russian Federation, Thailand
Part II-S(04 Objections)	Azerbaijan, China, Ukraine, USA
AP30B (11 Objections)	China, Croatia, Georgia, Luxembourg, Malaysia, Moldova and PNG
AP30/30A (05 Objections)	China, Germany, Mauritius, PNG

4.5.3 Overview of Spectrum Auction-2021:

- a. Spectrum Auction was held on 1st and 2nd March 2021. A total of 2308.80 MHz of spectrum was put to auction in different LSA-band combinations, with a total value of Rs. 400396.20 Crore at Reserve Price. Bidding took place for Spectrum in 800 MHz, 900 MHz, 1800 MHz, 2100 MHz and 2300 MHz bands.
- b. All the three incumbents private TSPs – M/s Bharti Airtel Limited, M/s Vodafone Idea Limited and M/s Reliance Jio Infocomm Limited – participated in the auction. The total quantity of spectrum for which right to use has been acquired in these bands is 855.60 MHz. The value of the spectrum for which there are winning bids is Rs. 77,820.81 Crore. Bidder-wise details of quantity of spectrum acquired and total amounts payable are as follows:

Bidder	Total Quantity (in MHz)	Total amount (Rupees in crore)
Bharti Airtel Limited	355.45	18,703.35
Vodafone Idea Limited	11.80	1,993.40
Reliance Jio Infocomm Limited	488.35	57,124.06
Total	855.60	77,820.81

- c. As per the terms and conditions of the NIA, the Demand Notices to the successful bidders were issued on 08.03.2021, and subsequently a total of 21,918.47 Crore upfront payment was received on 18th March 2021. The bidder wise details of received upfront payments are tabulated as below:

Bidder	Total upfront payment amount received in FY 2020-21 (Rupees in crore)
Bharti Airtel Limited	6,323.98
Vodafone Idea Limited	574.65
Reliance Jio Infocomm Limited	15,019.84

- d. After the receipt of necessary payments, harmonization exercise was conducted in April-2021. Through the harmonization exercise, spectrum blocks won by each of the successful bidders in 2021 auction and spectrum blocks already assigned to them through earlier auction/trading/liberalization were made contiguous, for better and efficient utilization of spectrum.

4.5.3.1 Reference to TRAI for upcoming spectrum auction:

After the auction held in March-2021 and frequency assignment to successful bidders, unsold quantum of spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz bands along with the spectrum in new spectrum bands identified for IMT/5G, namely 526-698 MHz, 3300-3670 MHz and 24.25-28.5 GHz bands was referred to TRAI for providing recommendations with regard to next spectrum auction. Subsequently, Government decisions taken with regard to future spectrum assignments of TSPs, as a part of the reforms and support package for the Telecommunications sector, were also conveyed to TRAI.

After receipt of TRAI recommendations, further necessary action with regard to upcoming spectrum auction will be taken.

4.5.3.2 Renewal of PMRTS licenses:

Total 28 WOLs of the PMRTS operators have been renewed since April-2021 till date.

4.5.3.3 Trading of Spectrum:

Spectrum Trading in Andhra Pradesh, Delhi and Mumbai by M/s Bharti Airtel Limited (Seller) and M/s Reliance Jio Infocomm Limited (Buyer) was completed in August-2021.

4.5.4 Terrestrial Broadcasting and Licencing

4.5.4.1 Frequency Assignment/clearance to Railways, Metro Rail Projects, Research/ Experimental/ Demo/Manufacturing purposes have been issued through online portal.

4.5.4.2 Frequency assigned to Airport Authority of India for NDB, Automatic Terminal Information System (ATIS), Tower BackUp, CMRTS assignment to Chennai Airport, etc to facilitate communication and navigation for Civil Aviation.

4.5.4.3 Frequency assigned to Indian Railways in VHF and UHF band to augment communication for operational safety purpose is a mile stone including new technologies such as End Of Train Telemetry (EOTT), Distributed Power Wireless Control System (DPWCS), Train Collision Avoidance System (TCAS), RAKSHAK to mention a few besides frequency assignment for conventional Driver Guard Communication, Security, Shunting and Yard Communication, etc.

4.5.4.4 As much as 55 licenses were issued to Community Radio Station (CRS) and frequency availability for 188 aspiring CRS stations has been issued during the year including License to The Statue of Unity Project, Kevadia, Narmada District, Gujarat.

4.5.4.5 Frequency assignment to All India Radio for 100 new AIR FM Stations have been issued to support the Public Broadcasting system.

4.5.4.6 No. of Radio Frequency Assignments for VVIP visits- 9.

Sl.No.	Item	Achievements	
		Actual 01/04/2021 to 30/11/2021	Anticipated 01/12/2021 to 31/03/2022
1	New Radio Frequencies Agreed to various users	592	458
2	No. of Wireless station license issued	175	128
3	No. of Wireless station licenseSchedule issued	1924	1376
4	No. of Wireless station licenserenewed	1956	1112
5	No. of Wireless station license Schedule renewed	51337	30748

4.5.5 Standing Advisory Committee on Radio Frequency Allocations (SACFA) Siting Clearance:

SACFA clearance is issued to individual Tower/Mast to prevent aviation hazard and ensure security aspects. Based on the "Ease of Doing Business " the SACFA clearance has been made automated and on self-declaration basis with time-bound clearances through Saral Sanchar portal of DoT w.e.f. 22.11.2021.

Sl.No.	Item	Achievements	
		Actual 01/04/2021 to 30/11/2021	Anticipated 01/12/2021 to 31/03/2022
1	No of SACFA applications processed & Acceptance No. issued.	490306	168694
2	No of SACFA Siting clearances issued	490306	164838

4.5.6 Activities

WPC Wing, DoT is national nodal agency on all matters related to radio frequency sector of International Radio Spectrum Management, while contributing in revision of ITU's Radio Regulations (International treaty). Further, revision of National Frequency Allocation Plan (NFAP) is also undertaken by WPC Wing which is based on national priorities and ITU's Radio Regulations.

4.5.6.1 Revision of NFAP 2018

NFAP Revision Committee for revision of NFAP-2018 was constituted under the Chairmanship of Wireless Adviser, WPC Wing. Draft NFAP has been prepared in consultation with stakeholders on the lines of recent ITU Radio Regulations 2020.

4.5.6.2 Spectrum Roadmap for next 10 years

Government on 16.12.2020 approved the proposal for spectrum auctions submitted by DoT and also directed that a roadmap for optimum utilization of spectrum be prepared taking into account

the emerging national priorities. In this regard, stakeholder consultations were held and draft spectrum roadmap for next 10 years was prepared.

4.5.6.3 Participation of Indian delegations in important international events

As a result of ongoing COVID 19 pandemic, all ITU and APT meetings and events have been held virtually since March 2020 and still continuing this year. DoT participation has increased in Radio communication meetings of International Telecommunication Union (ITU) and Asia Pacific Telecommunity (APT) and the same is summarised in Tables below.

S. No.	DoT delegations deputed for International E-meetings w.r.t. Radiocommunication during 2021-22 (1-4-2021 to 31-12-2021)		Number of meetings attended.
1.	ITU Meetings	Spectrum Management	07
2.		Radiowave Propagation	07
3.		Satellite Services	06
4.		Terrestrial Services	09
5.		Broadcasting Services	03
6.		Science Services	09
7.		Other ITU-R meetings	02
8.		Preparatory meeting for World Radio Conference 2023	01
9.	APT Meetings	Asia Pacific Telecommunity	04
	Total		48

S. No.	Major milestones of International E-meetings w.r.t. Radiocommunication during 2021-22 (1-4-2021 to 31-12-2021)	Number
1	DoT delegates deputed (Remote online participation)	386
2	Non-DoT (Govt.) delegates included in DoT delegation	97
3	Non-DoT (Pvt.) delegates included in DoT delegation	28
4	Preparatory Meetings held	05
5	Contribution documents submitted to ITU and APT meetings	07

4.5.6.4 Brief details of participation in international meetings w.r.t. radiocommunications during 1-4-2021 to 31-12-2021.

4.5.6.4.1 Spectrum Management: Spectrum management principles and techniques, general principles of sharing, spectrum monitoring, long-term strategies for spectrum utilization, economic

approaches to national spectrum management, automated techniques and assistance to developing countries. ITU-R Study Group 1 and its related Working parties deal with Spectrum management and its participation details are given below:

Meeting/event name and date	Brief about Indian contribution/participation
Study Group 1 (Spectrum Management) 03.06.2021	Spectrum Management Indian delegation virtually participated in the Study Group 1(SG1) E-meeting on 03 June 2021 (03 delegates).
Working Party 1A (Spectrum Engineering Technique) 25.05.2021 to 02.06.2021 03.11.2021 to 12.11.2021	Spectrum engineering techniques Including unwanted emissions, frequency tolerance, technical aspects of sharing, spectrum engineering, computer programs, technical definitions, Earth-station coordination areas and technical spectrum efficiency. Indian delegation virtually participated in the WP 1A E-meeting during 25 May to 02 June 2021(07 delegates) and 03 November to 12 November 2021(07 delegates).
Working Party 1B (Spectrum management methodologies and economic strategies) 25.05.2021 to 02.06.2021 03.11.2021 to 10.11.2021	Spectrum management fundamentals Including economic strategies, spectrum management methodology, national spectrum management organization, national and international regulatory framework, alternative approaches, flexible allocations and long-term strategies for planning. Indian delegation virtually participated in the WP 1B E-meeting during 25 May to 02 June 2021(07 delegates) and 03 November to 12 November 2021(07 delegates)
Working Party 1C (Spectrum Monitoring) 25.05.2021 to 02.06.2021 03.11.2021 to 10.11.2021	Spectrum monitoring Including the development of techniques for observing the use of the spectrum, measurements techniques, inspection of radio stations, identification of emissions and location of interference sources. Indian delegation virtually participated in the WP 1C E-meeting during 25 May to 02 June 2021(07 delegates) and 03 November to 10 November 2021(07 delegates).

4.5.6.4.2 Radiowave Propagation: Propagation of radio waves in ionized and non-ionized media and the characteristics of radio noise, for the purpose of improving radiocommunication systems. ITU-R Study Group 3 and its related Working parties deal with Radiowave Propagation and its participation details are given below:

Meeting/event name and date	Brief about Indian contribution/participation
<p>Working Party 3J (Propagation fundamentals)</p> <p>26.04.2021 to 29.04.2021</p> <p>21.06.201 to 01.07.2021</p>	<p>Propagation fundamentals</p> <p>WP 3J provides information and develops models describing the fundamental principles and mechanisms of radiowave propagation in non-ionized media. Such material is used as the basis of propagation prediction methods developed by the other Working Parties. Recognizing the natural variability of the propagation medium, WP 3J prepares texts describing the statistical laws relevant to propagation behavior and the means of expressing the temporal and spatial variability of propagation data.</p> <p>Indian delegation virtually participated in the WP 3J E-meeting during 26-29 April 2021(11 delegates) and 21 June to 01 July 2021(11 delegates).</p>
<p>Working Party 3K</p> <p>26.04.2021 to 29.04.2021</p> <p>21.06.2021 to 01.07021</p>	<p>Point-to-area propagation</p> <p>WP 3K is responsible for developing prediction methods for terrestrial point-to-area propagation paths. In the main, these are associated with terrestrial broadcasting and mobile services, short-range indoor and outdoor communication systems (e.g., radio local area networks, RLAN), and with point-to-multipoint wireless access systems.</p> <p>Indian delegation virtually participated in the WP 3K E-meeting during 26-29 April 2021(11 delegates) and 21 June to 01 July 2021(11 delegates).</p>
<p>Working Party 3L</p>	<p>Ionospheric propagation and radio noise</p> <p>WP 3L studies all aspects of radiowave propagation in and through the ionosphere. Recommendations are maintained describing, in mathematical terms, a reference model of ionospheric characteristics and maximum usable frequencies associated with the various ionospheric layers. Short-term and long-term ionospheric forecasting, with guidance on the use of ionospheric indices, is addressed.</p>

	Indian delegation virtually participated in the WP3L E-meeting during 23 June to 01 July 2021(12 delegates).
23.06.2021 to 01.07.2021	
Working Party 3M	Point-to-point and Earth-space propagation WP 3M addresses radiowave propagation over point-to-point terrestrial paths and Earth-space paths, both for wanted and unwanted signals. For terrestrial paths, prediction methods are developed for both line-of-sight and over-the-horizon links, taking into account the possible mechanisms that can give rise to fading and distortion of the wanted signal. The resulting predictions, generally expressed in terms of a statistical distribution of propagation loss or outage, provide vital information for terrestrial link planning in the fixed service (FS). Indian delegation virtually participated in the WP 3M E-meeting during 26-29 April 2021(11 delegates) and 21 June to 01 July 2021(12 delegates).
26.04.2021 to 29.04.2021	
21.06.2021 to 01.07.2021	

4.5.6.4.3 Satellite Services: Systems and networks for the fixed-satellite service, mobile-satellite service, broadcasting-satellite service and radiodetermination-satellite service. TU-R Study Group 4 and its related Working parties deal with Satellite Services and its participation details are given below:

Meeting/event name and date	Brief about Indian contribution/participation
Working Party 4A	Efficient orbit/spectrum utilization for the fixed-satellite service (FSS) and broadcasting-satellite service (BSS) The major study areas of Working Party 4A are orbit/spectrum efficiency, interference and coordination and related aspects for FSS and BSS. Its work has significant relevance to the preparatory work for World Radiocommunication Conferences. Indian delegation virtually participated in the WP4A E-meeting during 14-28 July 2021(12 delegates) and 28 October to 04 November 2021(07 delegates).
14.07.2021 to 28.07.2021	
28.10.2021 to 04.11.2021	
Working Party 4B	Systems, air interfaces, performance and availability objectives for the fixed-satellite service (FSS), broadcasting-satellite service (BSS) and mobile-satellite service (MSS), including IP-based applications and satellite news gathering (SNG)

	<p>Working Party 4B carries out studies on performance, availability, air interfaces and earth-station equipment of satellite systems in the FSS, BSS and MSS. This group has paid particular attention to the studies of Internet Protocol (IP)-related system aspects and performance and has developed new and revised Recommendations and Reports on IP over satellite to meet the growing need for satellite links to carry IP traffic. This group has close cooperation with the ITU Telecommunication Standardization Sector.</p> <p>Indian delegation virtually participated in the WP4B E-meeting during 12-16 July 2021(12 delegates) and 25-29 October 2021(07 delegates).</p>
12.06.2021 to 16.06.2021	
25.10.2021 to 29.10.2021	
Working Party 4C	<p>Efficient orbit/spectrum utilization for the mobile-satellite service (MSS) and the radiodetermination-satellite service (RDSS)</p> <p>Studies conducted within Working Party 4C are aiming at a more efficient use of the orbit/spectrum resources by MSS and RDSS systems. This includes analyzing various interference situations between such systems but also with systems operating in other radiocommunication services, developing coordination methodologies, describing the potential use of MSS and RDSS systems for specific purposes like emergency situations, maritime or aeronautical telecommunications, time distribution, etc.</p> <p>The Indian delegation virtually participated in the WP4C E-meeting during 05-13 July 2021(12 delegates) and 20-26 October 2021(07 delegates).</p>
05.07.2021 to 13.07.2021	
20.10.2021 to 26.10.2021	

4.5.6.4.4 Terrestrial Services: Systems and networks for fixed, mobile, radiodetermination, amateur and amateur-satellite services. ITU-R Study Group 5 and its related Working parties deal with Terrestrial Services and its participation details are given below:

Meeting/event name and date	Brief about Indian contribution/participation
Working Party 5A	<p>Land mobile service excluding IMT; amateur and amateur-satellite service</p> <p>WP 5A is responsible for studies related to the land mobile service, excluding IMT and including wireless access in the fixed service,</p>

	<p>and is also responsible for studies related to the amateur and amateur-satellite services</p> <p>Indian delegation virtually participated in the WP5A E-meeting during 28 April to 11 May 2021(02 delegates) and 15-26 November 2021(08 delegates).</p>
28.04.2021 to 11.05.2021	
15.11.2021 to 26.11.2021	
Working Party 5B	<p>Maritime mobile service including the Global Maritime Distress and Safety System (GMDSS); the aeronautical mobile service and the radiodetermination service</p> <p>WP 5B is responsible for studies related to the maritime mobile service, including the Global Maritime Distress and Safety System (GMDSS), the aeronautical mobile service and the radiodetermination service, including both radiolocation and radionavigation services.</p> <p>Indian delegation virtually participated in the WP5b E-meeting during 10-21 May 2021(02 delegates) and 29 November to 10 December 2021(08 delegates).</p>
10.05.2021 to 21.05.2021	
29.11.2021 to 10.12.2021	
Working Party 5C	<p>Fixed wireless systems; HF systems in the fixed and land mobile services</p> <p>WP 5C is responsible for studies related to fixed wireless systems and HF systems in the fixed and land mobile services. It studies performance and availability objectives, interference criteria, RF channel/block arrangements, system characteristics and sharing feasibility.</p> <p>Indian delegation virtually participated in the WP5c E-meeting during 28 April to 11 May 2021(02 delegates) and 15-26 November 2021(08 delegates).</p>
28.01.2021 to 11.05.2021	
15.11.2021 to 26.11.2021	
Working Party 5D	<p>IMT Systems</p> <p>WP 5D is responsible for the overall radio system aspects of International Mobile Telecommunications (IMT) systems,</p>

	comprising IMT-2000, IMT-Advanced, IMT-2020 and IMT for 2030 and beyond. Indian delegation virtually participated in the WP5D E-meeting during 07-18 June 2021(16 delegates), 04-14 October 2021(14 delegates) and 23-28 August 2021(06 delegates).
07.06.2021 to 18.06.2021	
04.10.2021 to 14.10.2021	
23.08.2021 to 28.08.2021	

4.5.6.4.5 Broadcasting Service : Radiocommunication broadcasting, including vision, sound, multimedia and data services principally intended for delivery to the general public. ITU-R Study Group 6 and its related Working parties deal with Broadcasting Service and its participation detail are given below:

Meeting/event name and date	Brief about Indian contribution/participation
Task Group 6/1	Task Group 6/1 is responsible for the development of draft CPM text under WRC-23 Agenda item 1.5. To review the spectrum, use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-15); Indian delegation virtually participated in the Task Group 6/1 (TG6/1) E-meeting during 05-14 July 2021(03 delegates) and 27 October to 09 November (03 delegates).
05.07.2021 to 14.07.2021	
27.10.2021 to 09.11.2021	
Working Party 6A	Terrestrial broadcasting delivery WP6A covers the activities in the area of terrestrial system characteristics, channel coding/decoding, modulation/demodulation, frequency planning and sharing for sound, video, multimedia and interactivity, characteristics of transmitting and receiving antennas and evaluation methods of service areas, transmitter and receiver reference performance requirements, requirements for source coding for terrestrial emission and requirements for metadata in terrestrial broadcasting.

	WP 6A is contributory group for WRC-23 agenda items 1.4, 1.12, 9.1(a) and (c). Indian delegation virtually participated in the Working Party 6A during 18-26 October 2021(07 delegates).
18.10.2021 to 26.10.2021	

4.5.6.4.6 Science Services: Systems for space operation, space research, earth exploration and meteorology, including the related use of links in the inter-satellite service. Systems for remote sensing, including passive and active sensing systems, operating on both ground-based and space-based platforms. Radio astronomy and radar astronomy. Dissemination, reception and coordination of standard-frequency and time-signal services, including the application of satellite techniques, on a worldwide basis. ITU-R Study Group 7 and its related Working parties deal with Science Services and its participation detail are given below:

Meeting/event name and date	Brief about Indian contribution/participation
Study Group 7 (Science Services)	Science Services Indian delegation virtually participated in the Study Group 7(SG7) E-meeting during 07 and 24 September 2021(08 delegates).
07.09.2021 to 24.09.2021	
Working Party 7A	Time signals and frequency standard emissions WP 7A covers standard frequency and time signal services, both terrestrial and satellite. Its scope includes the dissemination, reception and exchange of standard frequency and time signals and coordination of these services, including the application of satellite techniques on a worldwide basis. Indian delegation virtually participated in the WP 7A E-meeting during 19-23 April 2021(05 delegates) and 08-15 September 2021(08 delegates).
19.04.2021 to 23.04.2021	
08.09.2021 to 15.09.2021	
Working Party 7B	Space radiocommunication applications WP 7B is responsible for the transmission and reception of telecommand, tracking and telemetry data for space operation, space research, Earth exploration-satellite, and meteorological satellite services. It studies communication systems for use with manned and unmanned spacecraft, communication links between planetary bodies and the use of data relay satellites. Indian delegation virtually participated in the WP 7B E-meeting during 06 – 14 April 2021(05 delegates) and 08-15 September 2021(08 delegates).
06.04.2021 to 14.04.2021	
08.09.2021 to 15.09.2021	

Working Party 7C	Remote sensing systems WP 7C covers remote sensing applications in the Earth exploration-satellite service (EESS), both active and passive, systems of the MetAids service, as well as ground based passive sensors, space weather sensors and space research sensors, including planetary sensors. Indian delegation virtually participated in the WP 7C E-meeting during 19-23 April 2021(05 delegates) and 16-23 September 2021(08 delegates).
19.04.2021 to 23.04.2021	
16.09.2021 to 23.09.2021	
Working Party 7D	Radio astronomy WP 7D covers the radio astronomy service. Its scope includes radio astronomy and radar astronomy sensors, both Earth-based and space-based, including space very long baseline interferometry (VLBI). Indian delegation virtually participated in the WP 7D E-meeting during 12-16 April 2021(05 delegates) and 16-23 September 2021(08 delegates).
12.04.2021 to 16.04.2021	
16.09.2021 to 23.09.2021	

4.5.6.4.7 Other ITU-R meetings:

Meeting/event name and date	Brief about Indian contribution/participation
22nd International Space Monitoring Meeting (ISRMM)	The Radiocommunication Bureau hosted the 22 nd International Space Radio Monitoring Meeting (ISRMM) online from 21 to 23 September 2021. this year. Indian delegation virtually participated in the 22nd International Space Monitoring Meeting (ISRMM) during 21-23 September 2021(08 delegates).
21.09.2021 to 23.09.2021	
Regional Radiocommunication Seminar 2021 for Asia and the Pacific (RRS-21-Asia-Pacific)	ITU is organizing this seminar in collaboration with Asia-Pacific Telecommunity (APT). The first part of the Seminar cover, Spectrum Management, Master International Frequency Register (MIFR), RR, WRC, Radiocommunication Assembly (RA) and agenda of WRC-23. RRS-21-Asia-Pacific will conclude with a forum on

	<p>"Radiocommunication Trends: Opportunities and Challenges for the Asia-Pacific Region ".</p> <p>Indian delegation virtually participated in the Regional Radiocommunication Seminar 2021 for Asia and the Pacific (RRS-21-Asia-Pacific) during 11-22 October 2021(14 delegates).</p>
11.10.2021 to 22.10.2021	

4.5.6.4.8 Asia Pacific Telecommunity (APT) meetings: APT has two work programs related to Spectrum Management (i) APT Wireless Group (AWG) and (ii) APT preparatory Group for WRC (APG). APT participation details are given below:

Meeting/event name and date	Brief about Indian contribution/participation
APG23-2	<p>The objectives of the APG23-2 were:-</p> <ul style="list-style-type: none"> review of the working methods of APG for necessary amendments; - nomination for the Chairmen of Drafting Groups on individual WRC-23 agenda items; - consideration of the study progress in ITU-R Study Groups; - review of the preparation of ITU and other regional organizations for WRC-23 and - discussion and adoption of the APT Preliminary Views on WRC-23 agenda items and issues related to RA-23. <p>Indian delegation virtually participated in the APG23-2 E-meeting during 19-23 April 2021(08 delegates).</p>
19.04.2021 to 23.04.2021	
APG 23-3	<p>The objectives of the APG23-3 were as follows:</p> <ul style="list-style-type: none"> -review the results of the APG23-2 meeting -update APT preliminary views on WRC-23 Agenda Items based on input contributions from APT Members -consider the progress in ITU-R Study Groups in relation to WRC-23 Agenda items, and take necessary actions as appropriate -review the activities of other regional organisations, in particular, their preliminary views/positions with a view to fostering inter-regional cooperation -review of issues related to RA-23 and develop preliminary views of APT, if any -contribute, where necessary, to the activities of APT Preparatory Group related to PP-22 with respect to the issues relevant to the purview of the APG

	<p>-finalize review of the Working Methods of APG in relation to preparation for RA-23 and WRC-23 and submit draft amendments accordingly to the APT Management Committee</p> <p>-discuss APT preparations for the ITU Inter-Regional Workshop on WRC-23 Preparations.</p> <p>Indian delegation virtually participated in the APG 23-3 during 08-13 November 2021(08 delegates).</p>
08.11.2021 to 13.11.2021	
28th APT Wireless Group (AWG-28)	<p>The APT Wireless Group (AWG) covers various aspects of emerging wireless systems to meet the upcoming digital convergence era in the Asia-Pacific region. It also assists to provide effective radiocommunication solutions and to facilitate the transfer of technology and knowledge.</p> <p>Indian delegation virtually participated in the 28th APT Wireless Group (AWG-28) during 06-14 September 2021(09 delegates).</p>
06.09.2021 to 14.09.2021	
The South Asian Telecommunication Regulators' Council (SATRC) Workshop.	<p>The SATRC Workshop on Recent Trends and Technologies is a part of the implementation of SATRC Action Plan Phase VII for 2019–2020, which was approved by the 19th Meeting of the SATRC held in Islamabad, Pakistan in 2018 and was extended to 2021 for implementation at the SATRC-21 held on 27-28 October 2020 because of the COVID-19 pandemic. The workshop will focus on recent trends and technologies for providing connectivity and encouraging innovation.</p> <p>Indian delegation virtually participated in the “The South Asian Telecommunication Regulators' Council (SATRC) Workshop” during 27-28 September 2021(08 delegates).</p>
27.09.2021 to 28.09.2021	

4.5.6.4.9 Preparation meeting for WRC

Meeting/event name and date	Brief about Indian contribution/participation
1st ITU Inter-regional Workshop on WRC-23 Preparation	ITU Radiocommunication Bureau organizes ITU Inter-regional Workshops on WRC-23. Based on the presentation of the on-going ITU-R preparatory studies for WRC-23, as well as on up-to-date information regarding the Bureau and regional preparations for WRC-23, these meetings provide participants with the opportunity to exchange formally and informally and have a better understanding of the draft common views, positions and/or

	proposals of the concerned entities. Indian delegation virtually participated in the 1st ITU Inter-regional Workshop on WRC-23 Preparation during 13-15 December 2021(08 delegates).
13.12.2021 to 15.12.2021	

4.5.7 Achievements of Certificate of Proficiency (CoP)

4.5.7.1 Digitalisation of licenses: Under Phase I of SARAL Sanchar project, online modules for processing of fresh license Radiotelephony – Restricted (RTR) and General Operator Certificate (GOC)) have been launched in SARAL Sanchar portal. Phase II of the project shall cover the renewal process and integration with other online modules viz. Bharatkosh portal, other ministries portals etc.

4.5.7.2 Extension to validity of CoP licenses during COVID pandemic: For onboarding an aircraft or ship, one should be possessing RTR or GOC license. Due to national lockdown, licensees were unable to renew their licenses. Therefore, it has been decided to grant an extension to validity of CoP licenses (GMDSS-GOC and RTR licenses) for facilitating the continuity of their services.

4.5.7.3 Statistical data of CoP licenses:

	Achievement (April 2021 to November 2021)	Anticipated achievement (December 2021 to March 2022)
1. Certificate of Proficiency Examination licenses		
No. of new CoP license issued.	201	100
No. of CoP license renewed.	2230	1115
2. Radio Amateur Cell		
No. of new Amateur license issued.	401	200
No. of Amateur license renewed.	25	12
Change of location of station	08	04
Special Call Sign issued	14	07

4.5.8 Regulatory Achievements:

Online renewal modules for most of the license categories issued by WPC Wing have been made on Saral Sanchar portal.

- (a) Import Certificate module for the TSPs has been launched on self-declaration basis and the user will be able to download the certificate automatically.

- (b) New rules (G.S.R 853 (E) dated 10.12.2021) have been notified to exempt requirement of license to use 865-868 MHz Spectrum. This is in supersession of previous notification for license-exempt use of 865-867MHz spectrum. Thus, 1 MHz additional spectrum has been opened-up for license-exempt use.
- (c) New rules (G.S.R.870(E) dated 21.12.2021) have been notified to exempt requirement of license to use 9 KHz- 30 MHz frequency band for different Short Range Inductive application such as Near Field Communication (NFC), RF anti-theft devices etc.
- (d) Under Reduction of Compliance Burden, a no. of measures such as digitalization of license records, migration to online system of licensing etc. has been taken, for the purpose of Ease of doing business.

4.6 WIRELESS MONITORING ORGANISATION (WMO)

4.6.1. Radio Monitoring — a regulatory and treaty requirement.

Radio monitoring service, a regulatory and treaty requirement, is carried out by the Wireless Monitoring Organisation of the Wireless Planning & Co-ordination Wing (WPC.), DoT. It is essentially technical in nature and its broad objectives are derived from the international treaty document — Radio Regulations of the International Telecommunication Union.

4.6.1.1 Major functions of Wireless Monitoring Organisation (WMO)

The major functions of the WMO are as under:

- (i) Resolution of the harmful interference;
- (ii) Monitoring for identification of frequency sub-bands for introduction of new services and/or for additional allocation to existing services;
- (iii) Monitoring for spectrum recovery — unused/ under-used frequency authorizations;
- (iv) Monitoring for ensuring adherence to licensing conditions;
- (v) Monitoring / measurements for sharing studies;
- (vi) Assistance to domestic wireless users;
- (vii) Assistance to foreign administrations;
- (viii) Participation in special monitoring campaigns of the International Telecommunication Union;
- (ix) Measurements on radio emissions (intentional & non-intentional) for the possible introduction of new radio communication standards, and also for studying the EMC compatibility of the proposed new installations;
- (x) Inspection of licensed installations; and
- (xi) Monitoring of space emissions to protect authorized satellite transmissions.

4.6.1.2 Challenges before WMO

The increasing dependence of the society, the Government and the public alike, on the wireless communications demands WMO to ensure interference free radio communication environment. Therefore, WMO's primary focus, at present, is on public mobile radio communication services, public broadcasting services and safety-of-life services.

WMO is earnestly gearing up its resources— manpower and machine-power to ensure that these services continue to operate in interference-free environment. The primary reason for the interference protection to these services lies in their critical importance to the society as a whole. With respect to public mobile cellular service, WMO has twin objectives:

- a) To identify and eliminate the sources of interference occurring due to a multitude of reasons and to find unused spectrum for expansion of 2G, 3G & 4G services. In so far as public broadcasting is concerned, its transmissions have been found to be affecting aeronautical mobile communications (civil aviation) and also infringing licensing parameters.
- b) To address the needs of such crucial services, WMO is in the process of procuring custom-designed radio monitoring products. Beside the service-aspect of radio monitoring, WMO has to ensure the quality of the spectrum.

4.6.1.3 Wireless Monitoring Organisation continues to provide interference-free wireless services in the increasingly crowded radio environment besides providing vital technical data for the introduction of new services such as 5G, 4G, 3G etc. to WPC Wing. Achievements during 01.04.2021 to 30.11.2021 Wireless Monitoring Organisation are given below: -

4.6.1.3.1 Monitoring Activities:

WMO licenses (DPL and NDPL) made available on Saral Sanchar Portal of DoT.

Citizens can now apply for fresh/new Dealer possession licenses (DPL) and non-Dealer possession licenses (NDPL) by online filing of application on Saral Sanchar portal of DoT. These licenses will be issued from 27 field units of WMO across the country through online Saral Sanchar Portal. The work is under progress for implementing Phase-II of Saral Sanchar, which will include issuance of renewal of license, amendment of license etc. in seamless manner. These DPL/NDPL licenses are issued to legalize the possession of wireless telegraphy apparatus by public within the country as per the provisions of the Indian Telegraphy Act, 1885 and the Indian Wireless Telegraphy Act, 1933.

4.6.1.3.2 Enforcement initiative:

A mechanism for monitoring and inspection is being implemented for resolving interference complaints arising due to unauthorized BOOSTERS in the country. In this mechanism, WMO team takes action on the spot in presence of District Police authorities and complainant (licensed user) by detecting interfering source through monitoring, imparting awareness to public, serving notices and removal of boosters. This approach has proved to be game changer in dealing with booster

related interference cases. Hundreds of unauthorized boosters were removed from people/entities during these exercises and also notices were served on the spot to the users/owners of these boosters. Such exercises have been conducted by WMO Field units for various TSP's in different Telecom circles across India. TSP's have also acknowledged the improvement in their network quality after WMO's action.

Besides taking strong action on the ground against unauthorized boosters creating interference to public telecom networks, WMO has directed its 27 field units across different states of India to ensure that Dealer possession license holder of Wireless equipment should not engage in sale of unauthorized mobile signal boosters.

Further, WMO has also issued directions to monitor and detect the e-commerce websites displaying/selling unauthorized mobile signal boosters from their websites. This has been done to curb the influx of unauthorized mobile signal boosters across the country. As much as 137 notices have been served to e-commerce websites involved in display of mobile signal boosters on their websites.

WMO has also issued public notices on DoT website for awareness of common public to refrain from installing and using unauthorized boosters.

4.6.1.3.3 Innovative approach for resolving interference arising due to Jammers.

Telecom Service providers across the country are facing interference issues due to Jammers installed in Jail premises. Since, these Jail authorities are authorized to use Jammers so its removal is not possible. In order to resolve such interference issues, WMO has been executing joint monitoring and inspection exercises comprising;

- Officers from WMO
- Representatives of TSP's.
- Technical representatives from company who has installed the Jammer
- Jail authorities or as the case may be.

The motive behind these joint exercises is to find an amicable solution acceptable to TSP as well as Jail authorities. Such an approach is showing good results in resolving tedious interference cases.

4.6.1.3.4 Measuring of cellular signal Spillage from neighbouring countries.

Besides fulfilling the commercial needs of spectrum monitoring for public based telecom services, WMO also caters the requirements pertaining to monitoring of spillage of signals from other neighbouring countries within the Indian Territory. Such spillage of signals, not only cause interference to existing public telecom services in border areas but also raises security related issues for the country.

From time to time, WMO provides inputs to the Ministry by conducting spectrum monitoring assignments along the border areas in coordination with security agencies.

4.6.1.3.5 Spectrum monitoring to ascertain the actual utilization of cellular spectrum by TSPs.

WMO is also engaged in monitoring of cellular spectrum allocated to TSPs with a view to ascertain its actual utilization by TSPs in various telecom circles. WMO is conducting such monitoring exercises through its 27 field units across the country. From time to time, WMO has been submitting consolidated report of cellular spectrum monitoring carried out through all its field units across the country. This monitoring was carried out in order to find out the utilization of RF spectrum allocated to TSP's and also identify the IMT operations against all the active frequencies in six bands viz. 800/900/1800/2100/2300 and 2500 MHz having 2G, 3G and 4G Technology.

4.6.1.3.6 High Priority Spectrum Monitoring Assignments

The quantitative analysis pertaining to spectrum monitoring carried out within WMO with effect from 01.04.2021 to 30.11.2021 is tabulated given below:

S. Particulars No.	Actual performance during the period from 01.04.2021 to 30.11.2021	Anticipated performance during the period from 01.12.2021 to 31.03.2022
1. Monitoring assignment handled	7167	3584
2. No. Wireless Transmission monitored	60990	30495
3. Technical Assistance to users to maintain their operations within specified standards	417	209
4. Infringements communicated to wireless users for remedial actions	1801	901
5. Channel hrs utilized for Radio Monitoring.	84297	42149
6. No. of Wireless Stations Inspected	8638	4319
7. No. of Radio Noise Measurements	119128	59564
8. No. of High priority / Standard interference complaints undertaken	1060	530
9. No. of assignment related to national security	68	34

WMO is continuously striving in the field of spectrum monitoring for keeping the RF Spectrum clean which is being used by people/entities.

4.6.1.3.7 Satellite Monitoring Activities:

Spectrum is a limited scarce resource and in order to ensure optimum utilization of spectrum each country undertakes regular monitoring exercises for spectrum. A satellite monitoring station can provide coverage of satellite emissions depending on the satellite footprint, thereby, covering at times the territory of several countries.

Satellite monitoring facility of WMO protects the India Satellite System from getting interfered from foreign satellites and detect the beacon signals for satellite identification and measurement of technical parameters on regular basis.

To ensure quality of services, satellite spectrum must be used by service providers as per terms and conditions approved by the Government. Regulatory measures must be enforced.

Satellite Monitoring Activities undertaken: The following are the significant activities undertaken:

a. Detection of TV channels uplinked by Teleport Licensees:

International Satellite Monitoring Earth Station (ISMES), Jalna has carried out monitoring of Teleport Licensees. 28 numbers of TV channels were found to be not endorsed in the respective licenses of Teleport licensees. Accordingly, 06 number of Infringement Notices (INF) to the respective Teleport licensees have been issued for violation of 28 unauthorised TV Channels during the period April- November, 2021.

b. Violation of authorised technical parameters by Licensees of satellite-based services: International Satellite Monitoring Earth Station (ISMES), Jalna has carried out monitoring of authorised technical parameters total 12 number of violations to authorised technical parameters and different logo have been detected. Accordingly, 12 number of Infringement Notices (INF) to the respective Teleport licensees for violation of authorised technical parameters have been issued during the period April- November, 2021.

A. Annual Performance Output Statistics of Satellite Monitoring by WMO:

S. No.	Particulars	Achievements (Apr'21-Nov'21)	Anticipated (Dec'21-Mar'22)
(i)	No. of satellite Monitoring Assignment undertaken	363	182
(ii)	No. of satellite Monitoring assignment cleared	363	182
(iii)	No. of satellite monitored	76	38
(iv)	No. of satellite transponder/carrier monitored	692	346
(v)	No. of satellite carrier identified	1538	770
(vi)	No. of high priority satellite interference cases reported & resolved including satellite based public service operators	—	1
(vii)	No. of Channel hours utilized for satellite monitoring work	1850	925
(viii)	No. of satellite Inspection carried out related to satellite operations	—	10
(ix)	No. of Infringements issued	33	16

4.6.2 Training and Development Activities: -

The detailed information pertaining to trainings & technical visits conducted in year 2021-2022 is as following:

Training courses/workshops and seminars during 01.04.2021 till 14.12.2021:

Sl. No.	Name of Training Course	No. of Trainees
1.	Induction Training Program for IRRS Group 'A' Officers Batch-2020	2
2.	Training on "Policy for Access Spectrum Assignments and Issues involved therein" for STS IRRS Officers of WMO (Total-2 Batches)	16
3.	Seminar for Customs officials on "Introduction to WPC licenses and Equipment Type Approval"	82
4.	Training on "Inspection of Licenses & Installations, Enforcement and Relevant Acts" (For JTS IRRS Officers of WMO) Batch-1	12

Proposed and anticipated training courses/workshops and seminars till 31.03.2022:

Sl. No.	Name of Training Course	Duration & Month (tentatively)	No. of Trainees
1.	Induction Training Program Phase-2 (Field Attachments) for IRRS Group 'A' Officers Batch-2019	6 Weeks – 10.01.2022 to 08.04.2022	7
2.	Training on "Policy for Access Spectrum Assignments and Issues involved therein" for JTS IRRS officers of WMO (Total-2 Batches)	To be scheduled (1 week each)	16
3.	Training for Fresh RTR (Aeronautical) Examiners (Total-5 batches)	To be scheduled (5 weeks each)	75
4.	Hands-on Global Marine Distress and Safety Systems (GMDSS) and Maritime Services for JTS IRRS officers (Total 2 batches)	To be scheduled (1/2 weeks each)	20
5.	Training on "Inspection of Licenses & Installations, Enforcement and other Relevant Acts" (for JTS WPC Wing IRRS Officers) Batch-2	To be scheduled (1 Week duration)	15

4.7 TELECOMMUNICATION ENGINEERING CENTRE

Telecommunication Engineering Centre (TEC) is an attached office and technical arm of DoT primarily responsible for standardization, testing, certification in telecom and related IT domain, apart from advising Government in technological matters. With changing scenario of telecommunication services across the world, the telecom ecosystem is becoming important for

industrial development, economic growth and nation building. Consequently, the role of TEC has expanded so as to ensure interoperability through standards/specifications and ensuring security/safety through testing/certification of telecommunications and ICT systems in the country.

4.7.1 Responsibilities: At present, TEC is carrying out responsibilities related to standardization, testing, certification, accreditation etc. as given below:

- a) Formulation of Standards (Generic Requirements, Interface Requirements and Service Requirements) and Technical Regulation {Essential Requirements (ER)} in the field of telecom and related ICT sector
- b) Administering Mandatory Testing & Certification of Telecom Equipment (MTCTE) framework as Telegraph Authority
- c) Type Approval/ Interface Approval/Service Approval Certification (TAC/ IAC/ SAC) of Telecommunication Equipment/ Interfaces/ Services against TEC Standards
- d) Granting Certificate of Approval (CoA) against vendor specifications
- e) Granting Technology Approval for C-DOT and other R&D Organizations
- f) Promoting standardization in telecom & related IT sector
- g) Designated Testing and Certification Agency for Conditional Access System (CAS) and Subscriber Management System (SMS) used for Broadcasting and Cable TV services.
- h) Conducting field trials and validation of Technology/ Product developed by C-DOT
- i) Administering and Coordinating National Working Groups (NWGs) constituted corresponding to International Telecommunication Union (ITU)-T Study Groups in various ICT domains.
- j) Advanced Test Labs viz. Next Generation Network (NGN) test lab and IPv6 Ready Logo lab for testing of telecom products
- k) Designation Authority for domestic Conformance Assessment Bodies (CAB) and Certification Bodies (CB).
- l) National Enquiry Point for WTO –TBT (Technical Barrier to Trade) agreement for telecom sector
- m) Nodal agency for ITU-T related National Working Groups constituted corresponding to ITU-T Study Groups
- n) Complaint resolution for local content under PPP-MII (Public Procurement Preference to Make in India)
- o) Providing technical advice/ inputs for implementation of Production Linked Incentive Scheme of DoT

- p) Providing technical support to DoT and other government organizations viz. TRAI, TDSAT, WPC, USOF etc.
- q) Preparing study papers/white papers on the standards, facilities and features of the telecom equipment, systems and services to keep abreast with the latest technological developments.
- r) Conducting knowledge sharing sessions/ workshops with relevant stakeholders in the field of telecom technology, policy, technology roll out, standardization and processes.
- s) Carrying out adoption of standards of other national/ international Standard Development Organisations (SDOs) through a well-defined consultation process.
- t) Participation in the international pre-standardization/ standardization activities of international Standardization Organizations, viz. ITU, APT, WRC, IETF, ETSI 3GPP, OneM2M etc.

4.7.2 Standardization of Telecom & related IT sector

TEC has formulated more than 600 standards and 56 Essential Requirements (ERs) in the field of telecom & related ICT domain covering mobile, radio-communication, satellite communication, fixed networks, switching, telecom security, transmission, IoT, smart network, ICT and broadcasting systems/ interfaces/ services etc.

4.7.2.1 Standards Development Process: TEC formulates standards through a well-established comprehensive multi-tier consultation process involving diverse stakeholders viz. industry, service providers, business/ industry associations/ consortiums, academia, R&D organizations, scientific bodies, subject experts, consumer representatives and Government departments/ organizations. TEC also carries out adoption of standards of other national/ international standard development organizations.

4.7.2.2 Standards & Technical Regulations: TEC formulates standards (earlier called Generic Requirements, Interface Requirements and Service Requirements) for various equipment, interfaces and services. These standards and certifications are voluntary in nature. In addition to standards, TEC also formulates technical regulations in the form of ERs under the mandatory testing framework, which are mandatory to be complied with.

4.7.2.3 Conformance Testing & Certification: TEC tests and certifies various telecom products for conformance to standards, specifications and its capability to inter-work/ inter-operate in the existing network.

4.7.2.4 Mandatory Testing & Certification: Government has notified Indian Telegraph (Amendment) Rules, 2017, which, inter-alia, prescribes for mandatory testing and certification of all telecom equipments before its sale, import or use in India. TEC is implementing it and has formulated "Procedure for Mandatory Testing and Certification of Telecom Equipment (MTCTE)" document. The main objectives of MTCTE framework is to ensure that any telecom equipment

does not degrade the performance of existing network; safety of the end-users; RF emissions from equipment is within safe limits; and telecom equipment complies with the relevant national and international regulatory standards & regulations. Technical Regulations in the form of ERs, which are mandatory to be complied with under MTCTE framework, has been formulated for various telecom and related IT equipments. Testing under this framework is envisaged through TEC labs, TEC designated domestic Conformity Assessment Bodies (CABs) or TEC recognized foreign CABs of MRA partner countries. The whole process of application, test report upload/ evaluation and certificate issuance has been made online on MTCTE web-portal <https://www.mtcte.tec.gov.in>.

MTCTE implementation: MTCTE is being implemented in different phases, two phases, comprising of 27 products have already been launched and about 150 number of certificates have already been issued for different telecom equipment under this framework. Phase III (comprising of 29 products) and Phase IV (comprising of 118 products) of MTCTE framework covering different range of equipment have also been announced and acceptance of application commenced since 11.10.2021.

Status of MTCTE implementation (as on 30.11.2021)					
Particulars	Phase I	Phase II	Phase III	Phase IV	
				Part 1	Part 2
Notification date	04.07.2019	23.06.2021	22.09.2021	22.09.2021	22.09.2021
Mandatory date	01.10.2019	01.10.2020	01.07.2022	01.02.2022	10.01.2022
ERs notified	6	3	10	37	
Telecom products* Notified	21	6	29	118	
OEMs registered	Indian OEM – 48, Foreign OEM - 81				
Certificates Issued	113	44	Yet to commence		

* List of notified products and its variants is available at <https://www.mtcte.tec.gov.in/>.

MTCTE Surveillance: Surveillance is carried out to monitor and to enforce the compliance of MTCTE framework. MTCTE Surveillance policy has been prepared and surveillance is to be carried out by the Licensed Service Areas.

4.7.2.5 Testing Labs in TEC: In its endeavour of making India Atmanirbhar in telecom testing capacity, apart from designating private test labs, as designated CABs, TEC has also set up state of art labs viz. NGN transport lab, IPv6 Ready Logo lab, Control Lab (meant for testing 4G & IP Multimedia systems) and Green Passport Lab (meant for energy efficiency testing). These advanced test systems can also be made available to domestic start-ups, SMEs, incubators, developers, R&D organization, manufacturers, academia and research scholars for experimentations and to boost their indigenization efforts. Following test labs have been installed in TEC during current financial year:

(i) **NGN Control Lab:** NGN Control Lab (also commonly known as Mobile Core Testing Lab) has been set up in TEC, which can test different elements of the LTE Core Networks and IP Multimedia Subsystem (IMS) by simulating all the surrounding elements. The elements could be tested in isolation or in any combination.

NGN Control Lab 1

The testing capabilities of the lab are:

- Wireless Core testing comprising of complete LTE Core Network testing or testing of individual elements within the Core Network
- Complete IMS Network testing or testing of individual elements within the IMS Network
- End-to-End testing including wireless core + IMS testing;
- Testing of services such as Data, Video, VoLTE, SIP session for Wi-Fi Calling;
- Diameter testing: The test solution also ensures testing of diameter based interfaces.



(ii) **Green Passport (GP) Lab:** Setting up state-of-art Green Passport (GP) Lab in TEC is a significant step in Government's endeavour for Green Telecom and reducing carbon footprint in the sector. The GP Lab has facility to carry out Energy Efficiency Testing of various equipment in accordance with the energy consumption rating standards prescribed by TEC.

Designation of Domestic Testing and Certification Bodies: TEC also designates private testing labs as TEC Designated CABs (Conformity Assessment Bodies) in accordance with Scheme for Designating Domestic Testing and Certification Bodies for Conformity Assessment of Telecommunication Equipment. Till November 2021, six new labs are designated, making it to total of 62 TEC designated CABs so far. Details of designated CABs along with scope of designation is available at <https://www.tec.gov.in/Labs-Designated-by-TEC>

4.7.2.6 Important Standards, Essential Requirements and Technical Report issued during the year

- Standard for **Interface Requirements for Communication and Broadcast Networks for FSS/BSS (Mandatory Technical Requirements) (No. TEC 42012:2021)** revised. It covers technical requirements for satellite based telecommunications as well as broadcast networks.

- Standard for **Wi-Fi Access Point** (No. TEC38020:2021) was revised. The revised standard includes technical requirements to be fulfilled by a WANI Framework compliant WiFi Access Point, adoption of IEEE 802.11ae standard & IEEE 802.11ax (Wi-Fi 6) standard and relevant technical parameters like data rates, throughputs.
- Standard for Service Requirements of **Voice Mail Service** (No. TEC42012:2021) revised
- Standard for Service Requirements of **Audiotex Service** (No. TEC61054:2021) revised
- Standard for **10G-EPON for FTTx** Broadband Access Applications (No. TEC 71090:2021)
- Standard for Nx25G-EPON (25G-EPON and 50G-EPON) for FTTx Broadband Access Applications (No. TEC 71080:2021)
- ER for **IoT Gateway** (ER No- TEC24492106). It covers all types of IoT Gateways with Cellular Connectivity, Fixed line connectivity, LPWAN (LoRa and Sigfox) and Short range technologies (NFC RFID etc.)
- ER for **Smart Camera** (ER No - TEC28822105). It covers Smart / CCTV camera with Wireless and Wired connectivity
- ER for **Smart Watch** (ER No- TEC28732105). It covers Smart Watch with Cellular Connectivity
- ER for **Smart Electricity Meter** (ER No- TEC28362106). It covers Smart Electricity Meter with Cellular Connectivity
- ER for **Feedback device** (ER No- TEC23232106). This ER covers all types of IoT Feedback Devices with Cellular / non-cellular LPWAN Connectivity
- ER for **Infiniband Switch** (ER No. 30012110). It covers switches for higher throughput and very low latency computer networking communication and typically used for supercomputing applications.
- ER for **Optical Fibre Cable** & 14 variants (ER No. TEC70022110)
- ER for **Router** (5th variant) – Cloud Control Capable Router (ER No- TEC37681911)
- Technical Report on **Code of Practice for Securing Consumer Internet of Things (IoT)**
- Technical Report on **Emerging Communication Technology and Use case in IoT domain**
- Technical Report on **IoT/ICT enablement in smart village and agriculture**

4.7.3. Important Activities:

4.7.3.1 Activities related to 5G:

- **5G/5Gi Trials Test schedule and test procedure (TSTP):** DoT has accorded permissions to TSPs for conducting trials for showcasing the use and applications of 5G technology. In this regard, TEC has formulated the Test Schedule and Test Procedure for the 5G/5Gi trials in consultation with the stakeholders. Further, the test and evaluation of parameters is being carried out by LSA teams.
- ERs for 5G Base Stations, Mobile User Equipment, 5G Core Network elements are under development.

4.7.3.2 Green Telecom activities:

TEC has finalized standard for Energy Consumption Rating (ECR), which describes guidelines on measurement metrics and measurement methodology and also established Green Passport Lab, which will be used for energy efficiency testing and award of Green Passport certification.

WTO TBT (Technical Barriers to Trade) Enquiry Point: TEC has been designated as the WTO-TBT Enquiry Point under the Agreement on Technical Barriers to Trade of the World Trade Organization (WTO), to answer all reasonable inquiries from other members and interested parties concerning standards, technical regulations and conformity assessment procedures related to telecom sector.

4.7.3.3 Atmanirbhar Bharat:

- Establishment of Indigenous Manufacturing Promotion & Technical Barrier to Trade Enquiry Point (IMP & TEP) Division: To give focussed thrust on Atmanirbhar Bharat and Make in India Mission for domestic manufacturing, a separate division namely Indigenous Manufacturing Promotion & Technical Barrier to Trade Enquiry Point (IMP & TEP) is established in TEC.
- Technology Approvals were accorded to (i) C-DOT for XGS-PON system for FTTH application and (ii) Telecom. Research Lab, UIET, Panjab University Chandigarh for IP-PABX with Media Gateway.

4.7.3.4 Ease of Doing Business (EoDB):

To introduce 'Ease and Convenience' in its interaction with stakeholders, TEC has taken many steps, some of them are:

- Whole MTCTE process, from application to certification including status tracking has been made online.
- For greater usage of TEC Standards by diverse stakeholders i.e., MSME, start-ups and research community, these are now made online and downloadable free of cost.

4.7.3.5 ITU National Working Groups activities: TEC is responsible for administration and coordination of National Working Groups (NWGs) constituted corresponding to ITU-T Study Groups in various ICT domains. Regular meetings of NWGs are convened in TEC and all draft technical papers, called 'Contributions', are discussed, edited and ratified in these NWGs, before submission to ITU. Few notable contributions of the current year are:

- **ITU-T NWG-20:** Contribution on “*Requirements for deployment of smart services in rural communities*” (Y. SRC) submitted to ITU SG20(IoT and its applications in Smart Cities & Communities).
- **ITU-T NWG-12:** A contribution on “*Artificial Intelligence (AI) Quotient (AI-Q) for indexing and Rating AI Algorithm*” related to work item E.AIQ of ITU-T has been submitted to ITU-T Study Group-12.
- **ITU-T NWG-13:** A contribution on “End-to-end fault and performance management framework of network services in inter-cloud” was submitted and after acceptance became new Recommendation ITU-T Y.3527 “End-to-end fault and performance management framework of network services in inter-cloud.”
- **ITU-T NWG-13:** A contribution proposing significant changes to existing work item “*Architectural framework for Machine Learning Sandbox in future networks including IMT-2020*” (Y.ML-IMT2020-SANDBOX) was presented to ITU-T SG13 and accepted as TD 836/WP1.
- **ITU-R NSG-5:** A Contributions on “*HAPS as IMT Base Stations (HIBS)*” was finalized in NSG-5 meeting and submitted to ITU-R WP-5D.

4.7.4 Important Achievements during the year:

4.7.4.1 Launch of Revamped TEC Website



Launch of TEC website on 14th July 2021

4.7.4.2 Code of Practice for Securing Consumer Internet of Things (IoT)

A report on Code of Practice for Securing Consumer Internet of Things (IoT) (TEC 31318:2021) was released by Member (Services), Digital Service Commission and other senior officers of DoT/TEC on 11th October 2021 (available on TEC website <https://tec.gov.in/M2M-IoT-technical-reports>). This Code of Practice defines baseline requirements in the form of 13 principles, for securing consumer IoT.



Release of report on “Code of Practice for Securing Consumer Internet of Things (IoT)”

4.7.4.3 Inauguration of Public Procurement (Preference to Make In India) Grievance portal for Telecom Products

Public Procurement (Preference to Make In India) Grievance portal for Telecom Products (<https://www.tec.gov.in/PPPMII/>) was inaugurated by Shri K. Rajaraman, Secretary (DoT), on 16th November, 2021 in New Delhi. The PPP-MII Order for telecom sector, issued by DoT provides the list of 36 products and services with percentage of Make in India products as well as percentage of minimum local content. The identified products are required to comply with latest TEC GR/IRs. On this portal, manufacturers/vendors & other stakeholders can register their grievances and track the status of their complaints.



Inauguration of Public Procurement (Preference to Make In India) Grievance portal by Shri K. Rajaraman, Secretary, DoT

4.7.4.4 Release of Technical Report on Emerging Communication Technology and Use case in IoT domain

Technical Report on Emerging Communication Technology & Use case in IoT domain was released by Shri K. Rajaraman, Secretary (DoT) and other senior officers of DoT/TEC on 16th November 2021. It covers the technologies namely 5G, Wi-Fi 6/ 6E, Wi-Fi HaLow and Bluetooth Mesh; and the use cases like Intelligent transport system (Connected vehicles, C-V2X), Private industrial network (Industry 4.0), Smart homes etc.



Release of Technical Report on Emerging Communication Technology & Use case in IoT domain by Shri K. Rajaraman, Secretary, DoT

4.7.4.5 Release of TEC Handbook-2021

TEC Handbook-2021 was released by Secretary (DoT) on 16th November, 2021. It contains TEC overview, standard development process, available testing infrastructure and important technical study papers which can be used by various stakeholders as a reference book.



Release of TEC Handbook-2021 by Secretary, DoT

4.7.4.6 Inauguration of MTCTE Helpdesk & Evaluation Centre by Sh. K. Rajaraman, Secretary (DoT), on 16th Nov 2021: TEC has established MTCTE helpdesk in order to address the queries of OEMs and issue necessary clarification on the MTCTE Process. The MTCTE process is faceless and online and does not require any physical interaction in the entire process.



Inauguration of MTCTE Helpdesk & Evaluation Centre by Sh. K. Rajaraman, Secretary, DoT

4.7.4.7 Designation of TEC for testing and certification of equipment related to Broadcasting and Cable TV services

TEC has been designated as Testing and Certification Agency for Conditional Access System (CAS) and Subscriber Management System (SMS) used for Broadcasting and Cable TV services. TEC is responsible for formulation of Test Schedules and Test Procedures (TSTP), accreditation of labs, testing and certification and maintaining deployment details etc.

Important Study Papers released: TEC issued study paper (available at <https://www.tec.gov.in/study-papers>) on:

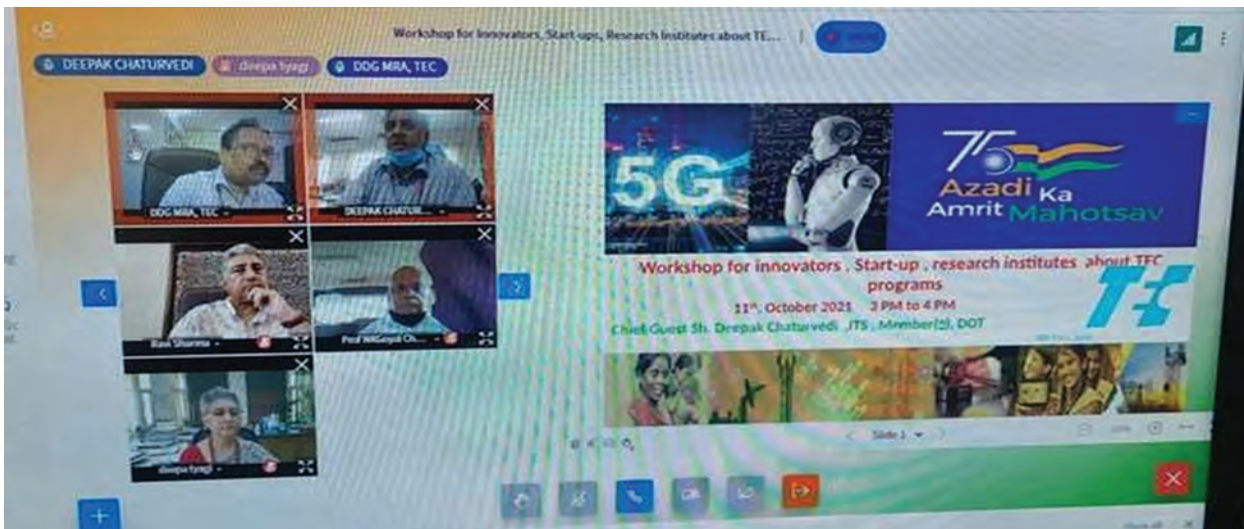
- Artificial Intelligence (AI) and Intellectual Property Rights (IPR)
- Malware Detection in Firmware.
- Artificial Intelligence (AI) in Automotives
- Security and Privacy in the Internet of Medical Things (IoMT)
- Concept paper on OF & OFC in Indian Telecom Network
- 25/50Gbps Passive Optical Network (PON)

4.7.5 Events conducted:

4.7.5.1 Celebration of 75th Azadi Ka Amrit Mahotsav (AKAM)

On the occasion of 75th Azadi Ka Amrit Mahotsav (AKAM) of Government of India, TEC has carried out following events:

- Workshop for Start-ups, Innovators and Research Institutes for awareness about TEC programs on 11.10.2021.



Workshop for Start-ups, Innovators and Research Institutes

- Release of Technical Report on “IOT/ICT enablement in smart village and agriculture” and Revised Certification Procedure document on 12.10.2021. Technical Report on “IoT/ ICT Enablement in Smart Village & Agriculture” covers diverse issues in different verticals such as agriculture, healthcare, animal husbandry, fisheries, education, water management etc. and provides smart solutions using IoT/ ICT and the related use cases.



Release of Technical report on “IOT/ICT enablement in smart village and agriculture” and Revised Certification Procedure document

DEPARTMENT OF TELECOMMUNICATIONS

- Seminar on background of Mandatory Testing & Certification of Telecom Equipment (MTCTE) and investment potential in Telecom Labs due to announcement of MTCTE Phase III and Phase IV was organized on 12.10.2021.

4.7.5.2 Panel discussion on “M2M/ IoT & 5G enabling Smart Infrastructure” in PM Gati Shakti Program

A panel discussion on “M2M/ IoT & 5G enabling Smart Infrastructure” was organized by TEC on 13th Oct 2021 at the launch of PM Gati Shakti, National Master Plan for Multi-modal connectivity. This panel was moderated and addressed by Smt. Deepa Tyagi, Sr. DDG TEC and having DDG(IoT) TEC, JS MoHUA and industry members as panellist.



Panel discussion on “M2M/ IoT & 5G enabling Smart Infrastructure” in PM Gati Shakti Program

4.7.5.3 Optical Fibre & Cable Concept Paper

A comprehensive concept paper prepared by RTECs covering all aspects of **Optical Fibre and Cable** was released by Secretary (DoT), on 16th November, 2021 in New Delhi. The paper also contains latest research work in the field of optical fibre.



Release of concept paper on Optical Fibre and Cable by Shri K. Rajaraman, Secretary, DoT

Important Achievement of Regional Offices of TEC: Regional TECs are front offices of TEC located at Delhi, Mumbai, Bengaluru and Kolkata for four geographical zones and handling certification applications such as Type Approval, Interface Approval, Certificate of Approval etc. They carry out testing against TEC standards and evaluates test results for compliance with respect to specified standards/ requirements. RTECs also carry out evaluation of test reports under MTCTE framework. RTECs also conducts outreach programmes for MTCTE awareness and playing key role in designation of testing laboratories of private/ Government sector as TEC designated CABs.

4.8 UNIVERSAL SERVICE OBLIGATION FUND (USOF)

4.8.1 Organizational Structure and Functions and Objectives of USOF:

4.8.1.1 Organizational Structure

The Universal Service Obligation Fund, formed by an Amendment Act of Parliament, is headed by the Administrator USO Fund, appointed by the Central Government, for the administration of the Fund. It is an attached office of the DoT.

4.8.1.2 Amendment to Telegraph Act for creation/ administration of USO Fund:

The Universal Service Support Policy for provision of telecom facilities in rural and remote areas of the country came into effect from 01.04.2002, thereby creating Universal Service Obligation Fund (USOF). The USO Fund was established with the fundamental objective of providing access to 'Basic' telegraph services to people in the rural and remote areas at affordable and reasonable prices. Subsequently, the Indian Telegraph (Amendment) Act, 2006 was notified on 29.12.2006 to repeal the term "basic" wherein the scope of USO Fund was widened to provide access to telegraph services (including mobile services, broadband connectivity and creation of infrastructure like OFC) in rural and remote areas.

4.8.2 Implementation status of the ongoing activities:

4.8.2.1 BharatNet:

BharatNet project is being implemented in a phased manner to provide broadband connectivity to all Gram Panchayats (GPs) and villages in the country.

The Phase-I has been completed in December 2017 with the implementation of over 1 lakh GPs, and the remaining Gram Panchayats are being connected under various models of implementation, i.e. State-led Model, CPSU-led Model, Private Sector-led model, etc.

As on 30.11.2021 under BharatNet project (Phase-I & II), about 5.55 lakh km Optical Fibre Cable has been laid and, 1.67 lakh GPs (approx.) have been made Service Ready.

As part of the project, the Last Mile Connectivity to access broadband /internet services is to be provided through Wi-Fi at Public places or any other suitable broadband technology, including FTTH at Government Institutions such as school, hospital, post offices, Aanganwadi, police station, etc. As on 10.12.2021, Wi-Fi hotspots have been installed at about 1.04 lakh GPs and 1.95 lakh FTTH connections have been provided. The combined data usage is to the tune of about 4929 TB/month.

The strategy for BharatNet implementation has been revised as per the recommendation of NITI Aayog and approval of DCC for Public -Private Partnership (PPP) model through Viability Gap Funding (VGF) for effective utilization of network and induction of private sector efficiency in its operation and maintenance. On 30.06.2021, the scope of BharatNet was extended upto all inhabited villages beyond GPs. The Government accorded approval for a revised strategy for implementation of BharatNet through PPP model in 16 States of the country covering about 3.61 lakh villages (including GPs) at a maximum cost of Rs. 19,041 Crore on VGF. Therefore, the total approved cost of BharatNet project is now Rs. 61,109 Crore (i.e., Rs. 42,068 Crore for BharatNet (Phase-I and Phase-II) and Rs. 19,041 Crore on VGF for PPP model in 16 States). The target date for completion of the project is August, 2023.

4.8.2.2 Comprehensive Telecom Development Plan (CTDP) for the North-Eastern Region:

A. Mobile Services in Uncovered villages in rest of NER and seamless coverage along National Highway:

Under this scheme, Mobile connectivity was planned to be provided by setting up 2128 towers in the uncovered villages and along National Highways of Assam, Manipur, Mizoram, Nagaland, Tripura, Sikkim, and Arunachal Pradesh (National Highways only) of North-East region. The Agreements were signed on 08.12.2017 and total 1,358 sites have been installed and are providing services covering 1246 villages and 283 National Highway sites.. The installation work is almost complete for feasible sites.

B. Mobile Services in Uncovered Villages of Arunachal Pradesh and 2 Districts of Assam:

As per Government approval on 09.12.2020, provision of 4G mobile services in 2374 uncovered villages in Arunachal Pradesh and two Districts of Assam (Karbi Anglong & Dima Hasao) will be carried out. Accordingly, work has been awarded and Agreements have been signed on 29.10.2021 for Arunachal Pradesh and on 01.11.2021 for two Districts of Assam with the Telecom Service Providers for execution of the scheme.

4.8.2.3 Project for Hiring of 10 Gbps International Bandwidth for Internet Connectivity to Agartala from BSCCL, Bangladesh via Cox Bazar

For making available high quality and high speed internet access to the States of North Eastern Region of the country, USOF has signed an agreement with BSNL on 18.08.2021 for hiring of 10 Gbps International Bandwidth for Internet Connectivity to Agartala from Bangladesh Submarine Cable Company Limited (BSCCL), Bangladesh via Cox Bazar/Kuakata. The project has been commissioned on 26.11.2021.

4.8.2.4 Implementation of Comprehensive Telecom Development Plan for Islands:

Telecom Commission in its meeting held on 07.11.2014 approved, in principle, an Integrated and Comprehensive Telecom Development Plan for Andaman & Nicobar Islands and Lakshadweep in accordance with TRAI recommendations dated 22.07.2014 for 'Improving Telecom Services in Andaman & Nicobar Islands and Lakshadweep'. The plan consists of the following schemes:

(A) Andaman & Nicobar Islands**(i) Submarine OFC Connectivity between Chennai and Andaman & Nicobar Islands:**

Cabinet in its meeting held on 21.09.2016 approved the dedicated submarine OFC link from Chennai to Port Blair & 5 other Islands viz. Car Nicobar, Little Andaman, Havelock (Swaraj Dweep), Kamorta and Great Nicobar Island. Subsequently, submarine OFC connectivity of Rangat Island and Long Island was approved in addition to 6 Islands. 2313 km four pair Submarine Optical Fibre Cable has been laid, out of which one fibre pair has been shared with Ministry of Defence exclusively. Hon'ble Prime Minister inaugurated and dedicated to nation the Chennai-Andaman Nicobar Islands (CANI) Project on 10.08.2020 at a cost of Rs. 1,224 Crore. All segments of CANI submarine cable project are commissioned. 200 Gbps Bandwidth is available between Chennai to Port Blair while 100 Gbps bandwidth is available within Islands. The Tripartite Agreement for Operation & Maintenance has also been signed between USOF, BSNL & U.T. Administration of Andaman & Nicobar Islands on 13.11.2020. The bandwidth utilization as on date is 43.09 Gbps.

(ii) Satellite Bandwidth Augmentation for Andaman & Nicobar Islands:

Work of augmentation of satellite bandwidth from 2 Gbps to 4 Gbps in Andaman & Nicobar Islands was awarded to BSNL on nomination basis. The CAPEX of Rs. 36.39 Crore plus applicable taxes is being funded by USO Fund, while OPEX (Satellite Transponder charges) is being funded by MHA / UT Administration of Andaman & Nicobar Islands. Work of augmentation of satellite bandwidth from 2 Gbps to 4 Gbps has been successfully implemented by BSNL on 09.09.2021 despite second phase of COVID-19.

(iii) Provision of 4G Mobile Coverage in Uncovered Villages and seamless 4G Mobile coverage of National Highway NH-4 (Erstwhile NH-223) in Andaman & Nicobar Islands:

DCC in its meeting held on 20.12.2019 approved the proposal for setting up of 82 towers to provide 4G mobile services in identified 85 uncovered villages and 42 towers for providing seamless mobile coverage by bridging the gaps along uncovered NH-4 (Erstwhile NH-223). The CAPEX & OPEX for 5 years are funded by USOF through VGF Model [Total: Rs 129.58 Crore (excluding taxes)]. Agreement was signed between USOF and M/s RJIL on 15.03.2021 as an outcome of the open tender floated by USOF for implementation of project in 12 months. However, extension of 3 months has been granted under Force Majeure clause owing to 2nd wave of COVID-19. The project is targeted to be completed by June 2022.

(B) Lakshadweep Islands:**(i) Submarine OFC Connectivity between Kochi and Lakshadweep Islands:**

Cabinet in its meeting held on 09.12.2020 approved provision of Submarine Optical Fibre Cable Connectivity between Kochi and Lakshadweep Islands (KLI Project) comprising of Kavarati and ten other Islands, namely, Kalpeni, Agatti, Amini, Androth, Minicoy, Bangaram, Bitra, Chetlat, Kiltan and Kadmat.. The total estimated Route length is about 1,772 km and

the total financial implication is about Rs.1072 crore (excluding taxes). BSNL, the Project Execution Agency, has awarded the work for Submarine System on 28.09.2021 to M/s NECCIPL as an outcome of global tender floated by them. The project is targeted to be implemented by May 2023 i.e., within 1000 days from the date of announcement by Hon'ble Prime Minister on 15th August 2020.

(ii) Satellite Bandwidth Augmentation for Lakshadweep Islands:

Work of augmentation of satellite bandwidth from 318 Mbps to 1.71 Gbps in Lakshadweep Islands was awarded to BSNL on nomination basis. The CAPEX of Rs. 28.26 Crore plus applicable taxes is being funded by USO Fund while OPEX (Satellite Transponder charges) is being funded by MHA/ UT Administration of Lakshadweep Islands. Work of augmentation of satellite bandwidth from 318 Mbps to 1.71 Gbps has been successfully implemented by BSNL on 14.08.2021 despite second phase of COVID-19.

4.8.2.5 Re-provisioning of Digital Satellite Phone Terminals (DSPTs) provided to MHA agencies (CAPFs), MoD agencies (Army, BRO) and other agencies using VSAT connectivity under BharatNet Project:

These DSPTs are provided in remote, rural, far-flung and difficult terrain where no coverage from any other operator is available. As a short term measure, INMARSAT terminals were provided to MHA agencies (CRPF, BSF, ITBP, & SSB) and MoD agencies (Indian Army & BRO) to meet their critical communication needs. DCC in its meeting held on 20.12.2019 approved the proposal for provisioning of Digital Satellite Phone Terminals (DSPT) to these agencies using VSAT connectivity. As on 13.01.2022, 1381 VSATs have been made operational out of total 1396 (including 124 Ladakh VSATs).

4.8.2.6 Mobile Service in Uncovered Villages:

Government has prioritized to reach remote areas of the country such as North-Eastern States, Islands, Himalayan States, Western Border States and more importantly the Left Wing Extremism affected areas in the first phase.

Tender for provision of mobile service in 354 uncovered villages of J&K, Ladakh, Himachal Pradesh, Uttar Pradesh, Bihar, Rajasthan, Gujarat, Uttarakhand, Border areas and other priority areas was awarded at a cost of Rs.337 crores and is under implementation. As of now, around 210 villages have been covered with mobile service. Further, additional order to cover 55 villages of Uttarakhand, J&K, Rajasthan and Gujarat has been given under the scheme.

4.8.2.7 Aspirational Districts Scheme

- (a) A Scheme for 502 uncovered villages across 112 Aspirational District over four States (namely Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan) for provisioning of 4G based Mobile services has been awarded and the project is under implementation.

- (b) A scheme for providing 4G mobile Services in 7,287 uncovered villages across 44 Aspirational Districts of 5 States (Andhra Pradesh, Chhattisgarh, Jharkhand, Maharashtra and Odisha) at an estimated cost of Rs. 6,466 Crore has been approved by Government on 17.11.2021. Request for Proposal (RFP) has been floated for implementing the project on 07.12.2021.

4.8.3 Status of USO Fund:

Universal Access Levy (UAL) amounting to Rs.1,17,080.26 crore has been collected and the total allotment amounting to Rs.59223.48 crore received through Parliamentary approvals has been utilized to fulfill the objective of USOF. The balance of UAL amount available as potential fund under USOF is Rs. 57856.78 crore as on 31.03.2021.

Details of subsidy disbursed under Universal Service Obligation Fund during the FY 2021-22 & current financial year:

Amount proposed to be Disbursed during 2021-22 (Rs. in Crore)	The expenditure till Dec 2021 (Rs. in Crore)
8300	3340.68

4.9 NATIONAL CENTRE FOR COMMUNICATION SECURITY (NCCS)

National Centre for Communication Security is a subordinate office under DoT with headquarters at Bengaluru, for the purpose of establishing and operationalising a framework of telecom security testing and certification within the country. In order to make the network more secure and less vulnerable from internal and external threats, Government envisaged a pilot Telecommunication Testing and Security Certification (TTSC) project for testing and validating each network element before its integration with the telecom network. The Security Assurance Standards Facility (SASF) of DoT at Bengaluru is an outcome of this pilot project and is the national facility for the Security Assurance Requirements for Telecom equipment to be inducted into the Indian telecom networks. The TTSC has been renamed as NCCS in 2019 and entrusted with the responsibility to establish and operationalize a framework of telecom security testing and certification within the country. It is equipped with test beds for conducting testing and development of telecom testing procedures in compliance with the Indian Telecom Security Assurance Requirement (ITSAR) for the telecom equipment. NCCS is equipped with four test beds for preparing, developing and validating the test procedure for conformance to the ITSAR.

4.9.1 Objective: The objective of NCCS is to establish and operationalize a framework of telecom security testing and certification within the country. The approved framework defined through COMSEC scheme along with Security Certification Process has been published on NCCS web portal: -

- (i) **Security Assurance Standards (SAS) division:** This division is assigned the task of developing security standards and requirements for ICT equipment. The division is responsible for developing test processes, test suites, security test standards, recommending test tools and notifying contemporary security features for various

network elements of telecom network. The SAS unit is preparing the security requirements/standards called Indian Telecom Security Assurance Requirement (ITSAR) for network elements (or a class of network elements) and notify them. This division has finalized and published ITSARs for IP Router, WIFI Modem, MME(4G), E-NodeB(4G), P-Gateway(4G), SIM/USIM and Mobile Device after open, consultative stakeholder's consultation. ITSARs for S-Gateway (4G), PCRF (4G), HSS (4G), Transmission Terminal Equipment and PON family of equipment shall be finalized by March 2022. Stakeholder consultations have been completed for ITSAR for PABX. ITSARs for Cordless Telephone (Analog) devices and ISDN CPE (MCU) are currently under Industry Consultation stage. SAS division is currently also preparing draft ITSARs for Set Top Box, Feedback Devices (IoT), Satellite Equipment, OTA/FOTA and Cell Broadcast Centre.

- (ii) **Security Lab Recognition (SLR) division:** This division is responsible for creating framework for establishing and operationalising the telecom security test labs in India in private and public sector by recognizing the telecom security testing labs, notifying telecom security test lab recognition mechanism, and conducting infrastructure assessment for recognition of telecom security test labs. The framework comprising of Documents for Designation requirement for Telecom Security Test Laboratories (TSTL), Procedure for Designating TSTL and Application forms for Designation of TSTL have been approved by DoT HQ and published on NCCS Web Portal.
- (iii) **Security Certification and Headquarters (SC& HQ) division:** This division is mandated to develop framework of issuing security certificate for the successfully tested products. The work includes evaluation of the test results from telecom security test labs and recommending issuing of security certification based on the testing performed by recognized labs. The requirements for development of portal for security certification and related activities are being finalized in consultation with CDoT. SC& HQ division is also responsible for over-all coordination amongst the three verticals and work of NCCS headquarters.

4.10 NETWORK OPERATIONS CONTROL CENTER (NOCC)

NOCC monitors and controls parameters of carriers uplink from 1590 Satellite Earth Stations/ Teleports/DSNG & more than 2,84,000 VSATs. NOCC has made endeavours to provide the interference free environment to the various satellite users in country and NOCC provides mandatory clearances within three working days to applicant agencies. The Network Operations Control Center (NOCC) performs important functions of enforcement and regulatory. Broadly its functions are as follows:

- Online operational control, coordination and monitoring of all the satellite based services (Like VSAT applications, Broadcasting, DTH, ISP etc.) in India on Indian and foreign satellites.
- Handling contingency operations in case of failure of transponders/satellites.

- Providing RF Interference solutions and coordinating with different satellite administration for the resolution of the interference problem(s)
- Mandatory Performance Verifications Testing of all the ground segment satellite earth station antennae for conforming to latest ITU/TEC standards before permitting them to put in operations.
- Testing of ISP satellite Gateways & monitoring of transmissions from these gateways.
- Testing & clearance of Teleports of TV broadcaster(s) and Direct to Home (DTH) service providers
- Testing and clearance of Digital News gathering (DSNG) vans used for live gathering
- Testing of satellite transponder before accepting for operations
- Spot frequency allocations and carrier plan approval to all the INSAT users and foreign satellite users for broadcasting/ DTH/ DSNG, NLD and ILD services (VSAT).
- Verification/ Implementation of license conditions as and when called upon by Licensing cell of DoT

4.10.1 Regulation of space segment: NOCC has been performing regulatory function for usage of space segment by VSATs, NLD (National long distance services), ILD (International long distance services), Broadcasting, DTH (Direct-To-Home) and HITs (Headend in the Sky) services as per their allocation, presently on 34 Satellites Viz. GSAT-6, 7A, 8, 10, 11, 14, 15, 16, 17, 18, 19, 29, 30, 31, Measat-3, 3B, SES-7, SES-8, SES-9, ST2, IS-17, IS-20, IS-33e, IS-39, IS-902, NSS-12, Asiasat-5, 7, 9, Chinastat-12, Thaicom-4, PALAPA-D, CMS-01 and Inmarsat-I5F4. NOCC, issued 95 uplinking permission and 50 frequency plan approvals to various applicant agencies during Jan-Dec 2021.

NOCC, during Jan-Dec 2021, monitored and controlled various transmission parameters of carrier uplink from 1590 Satellite Earth Stations/Teleports/DSNG & more than 2,84,000 VSATs. NOCC also resolved the RF interference namely RF interference due to cross polar carriers, FM (Frequency modulation) Radio pick up, unauthorized pickup, DSNGs operations, other satellites from INSAT and other satellite administrators etc. identifying source of the suspected RF interference.

NOCC carries out the mandatory performance verification testing of antennae of satellite earth stations and DSNG. During Jan-Dec 2021, NOCC carried out mandatory performance verification testing tests of 25 antennae of different type of satellite earth stations and DSNG before inducting them into network.

During Jan-Dec 2021, NOCC has issued 17 nos. of uplink permissions for live telecast of events of national and international importance and NOCC played important role in interference free telecast.

4.10.2 Financial Achievements: During Jan-Dec 2021, NOCC has billed more than Rs. 51 crore for the services rendered by NOCC to the various user agencies and for uplink permissions for live telecast of events of national and international importance.

4.11 CONTROLLER GENERAL OF COMMUNICATION ACCOUNTS (CGCA) OFFICE

A. Controller General of Communication Accounts has the following sections:

i. IA Section

- a. Internal Audit of field units of DoT and its attached offices, autonomous bodies and DoT Wings
- b. Review of Internal Audit reports, formulation of Internal Audit policy/ Methodology for DoT.

ii. BA&IT Section

- a. Operation and Maintenance of Comprehensive Pension Management System (SAMPANN)
- b. Conducting National Pension Adalats/ Digital Adalats/Review Conferences.
- c. Review of State of Work(SWR) Report and Expenditure of field units
- d. Development & Maintenance of Softwares and Websites.

iii. Revenue Section:

- a. Confirmation/Amendment/Extension/Review of Bank Guarantees by CCAs.
- b. Release of PBGs and FBGs upon cancellation, termination, expiry of licenses.
- c. Monitoring of Decentralized (Non-Access) Licenses and their assessments
- d. Appellate Authority for Assessments carried out by Pr. CCAs/ CCAs.
- e. Monthly/Progressive SUC collection GSM/CDMA/BWA/VSAT)
- f. Several types of RLO Licenses

iv. Coord & Admin Section

- a. Cadre management of Non-Gazetted Group 'B' Group 'C' officials of all the field units (Pr. CCAs/CCAs/Jt. CCAs/NICF)
- b. Monitoring of Asset Management activities by CCA offices.
- c. Monitoring of court cases of field offices through LIMBS software.
- d. Maintenance of service book & Fixation of pay, granting of leaves, Tours & LTC, promotional & retirement of all the Pr. CCAs/CCAs/Jt. CCAs (I/C)

v. Manuals & Codification Section

- a. Preparation of Telecom Accounts and Finance Manual

B. Achievements/ Initiatives/ Vision forward:

i. Key Initiatives of IA Section (CGCA):

- An online training on Capacity Building Programme on "Internal Audit in DoT" was conducted through NICF for the staff of Pr.CCA/CCA/Jt.CCA offices for two days from 10.08.2021-11.08.2021

- The Second Edition of the Internal Audit Manual for DoT was released by Secretary, DoT in the presence of Members of the Digital Communication Commission on 10th December 2021.



Inauguration of 2nd edition of Internal Audit Manual for Telecom Department on 10th December 2021 by Shri K. Rajaraman, Secretary, DoT.

- The Annual Plan for 2021-22 for conducting inspections by office of CGCA is prepared and inspections of eight units have been completed up to November-2021. Similarly the annual plan for conducting inspections has been got prepared by all Pr.CCA, CCA and Jt.CCA offices for the units coming under their jurisdiction and progress of the inspections is being watched.
 - The Audit Reporting Monitoring System (**ARMS**) software was developed in house for monitoring the work of Internal Audit of all Pr.CCA and CCA offices and rolled out during the year.
- ii. **Key Initiatives of Budget & Accounts and IT Section (CGCA):**
- **SAMPANN**

SAMPANN ‘System for Accounting and Management of Pension’, inaugurated by the Honourable Prime Minister on 29th December, 2018 and launched on 1st January, 2019, has been rolled out at all Pr. CCA/CCA Offices and is being used for processing, sanctioning, authorization and disbursement of pension.

	SAMPANN
Achievements	<ul style="list-style-type: none"> • 102207 pensioners are being serviced via SAMPANN • Around 9000 online grievances have been settled via SAMPANN • Pension amounting to around Rs. 15,825.44 Cr. has been disbursed as of June 2021

Vision	<ul style="list-style-type: none"> • SAMPANN has led to Commission Savings of approximately Rs. 11.51 crores as of June, 2021. • SAMPANN has helped the Department in ease of accounting and auditing/reconciliation • SAMPANN has also been instrumental in settling close to 76000 BSNL Voluntary Retirement Scheme 2019 cases in a short span of 6 months. • On-boarding and Migration of MTNL pensioners on SAMPANN • Digilocker Integration for easy access to ePPO • ePPO for Migrated pensioners
--------	---

- **Review of State of Work Report (SWR)-**

State of Work Report (SWR) is designed to monitor and give intelligent inputs on efficiency and effectiveness of functioning of Pr. CCAs/CCAs/Jt. CCAs. Systematic monitoring of vital parameters of field units through the software results in a seamless and smooth functioning of all the 28 field units spread across the country.

State of Work Report 2.0	
Existing provisions	At present SWR 2.0 is running on intranet with physical server at DoT HQ. Parameters pertaining to Pension, GPF, PVA, Bank Reconciliation, Pension Grievances & Audit Paras are incorporated in SWR 2.0.
Achievements	CGCA office has taken view and server access through VPN.
Vision	Launch of modified version of SWR (e-sankalan) with additional parameters for effective monitoring

- **Pension Adalats/ National Pension Adalats:**

In accordance with directions of Ministry of Personnel, Public Grievances and Pensions, Department of Pension and Pensioners' Welfare (DoPPW), Digital Pension Adalats are held by frequently by all the Telecom circles for better coordination with pensioners and timely redressal of grievances.

During last Digital Nationwide Pension Adalat held on 24.11.2020, 484 cases/ grievances were received out of which 475 cases have been resolved.

- **Monitoring of Voluntary Retirement Scheme (VRS)-2019:**

Through effective monitoring of high-Level Committee by novel use of digital platforms like Video Conferences there has been a remarkable progress towards the settlement of cases under VRS 2019.

Total No. of VRS cases due for settlement	Total No. of VRS Cases received from BSNL/ MTNL	Total No. of VRS Cases settled by CCAs
88604	88407	88076 (99.40%)

The humungous time bound task was completed by the field units under vigilant monitoring and pursuance by O/o CGCA, even during challenges faced by Pandemic COVID-19(90% cases settled during May-2020 to July-2020).

- **Development of CGCA Centralized website:**

A centralized website of CGCA (<http://cgca.gov.in>) has been developed and soft launch of the website done as per GIGW compliance with SSL Certification.

	CGCA Website
Existing provisions	The website contains information and other frequent activities being performed by CGCA office and its field units i.e. all Pr. CCA/CCA offices.
Achievements	SSL Certification, security audit and domain renewal of website has been completed successfully. A link for Audit Reporting and Monitoring System (ARMS) has been provided, for monitoring of Internal Audit plans & Reports
Future plans	A proposal is under consideration to have a dynamic structure of website where real-time data may be captured.

Future Plans: Development of in-house GPF software i.e. Software for Accounting & Management of GPF Related Activities (SAMAGRA).

iii. Key Initiatives of Revenue Section (CGCA):

A) Bank Guarantee Management

Forwarding of Bank Guarantees to respective CCAs as received from AS/DS/CS wing for new licenses issued, confirmation/Amendment/Extension/Review of Bank Guarantees by CCAs, release of PBGs and FBGs upon cancellation, termination, expiry of licenses and monitoring of Bank Guarantees in CCAs offices. Rationalization of BGs in pursuant to Telecom Reforms 2021.

B) Monitoring of Decentralized (Non-Access) Licenses:

New License entry in software by CCAs and monitoring of Assessment of Licenses by CCAs.

SUC

Monitoring of assessment of SUC based on AGR finalized by LFA wing, DoT HQ in respect of all TSPs and monthly/progressive collection of SUC in respect of GSM/CDMA/BWA/VSAT

RLO

Monitoring of RLO Licenses in respect of Maritime Mobile Station License (Fishing Trawlers), Maritime Mobile Station License(Ships), Short Range UHF Radio (Hand held license).

Appeals

Receipt of representations from ISPs and seek para wise comments from CCAs and dispose the appeals and referring to LFP wing, DoT in cases where clarifications are needed. Appellate Authority for Assessments carried out by Pr. CCAs/ CCAs.

iv. Key Initiatives of Admin and Co-ordination Section (CGCA):

- **Framing and Amendment in Recruitment Rules.**

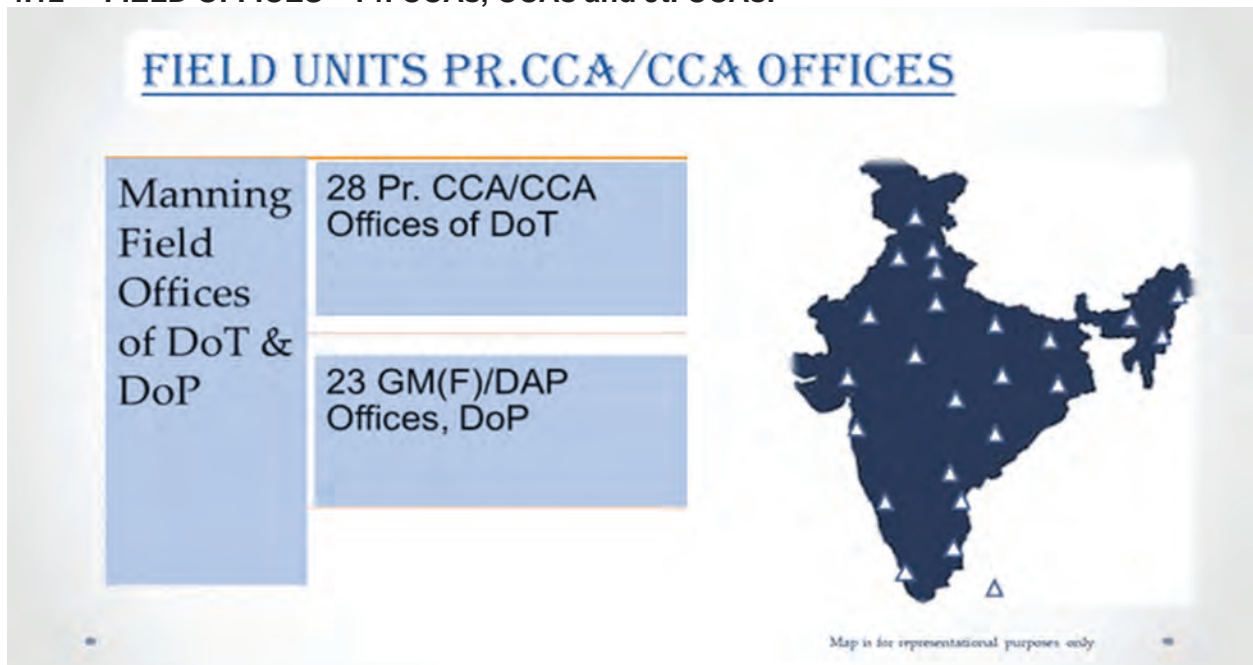
O/o CGCA is the cadre controlling authority of Group 'B' Non Gazetted and Group 'C' staff working in 'Accounts & Finance wing' of DoT. To utilize and optimize the work force in the all the unit offices, O/o CGCA is in continuous process to frame and amend Recruitment Rules. The "RR" of Jr. Accountant has been framed in 2020.

- **Asset Management**

The CGCA office is performing the work of monitoring of DoT buildings and Asset Management of field units of Pr. CCAs/CCAs offices.

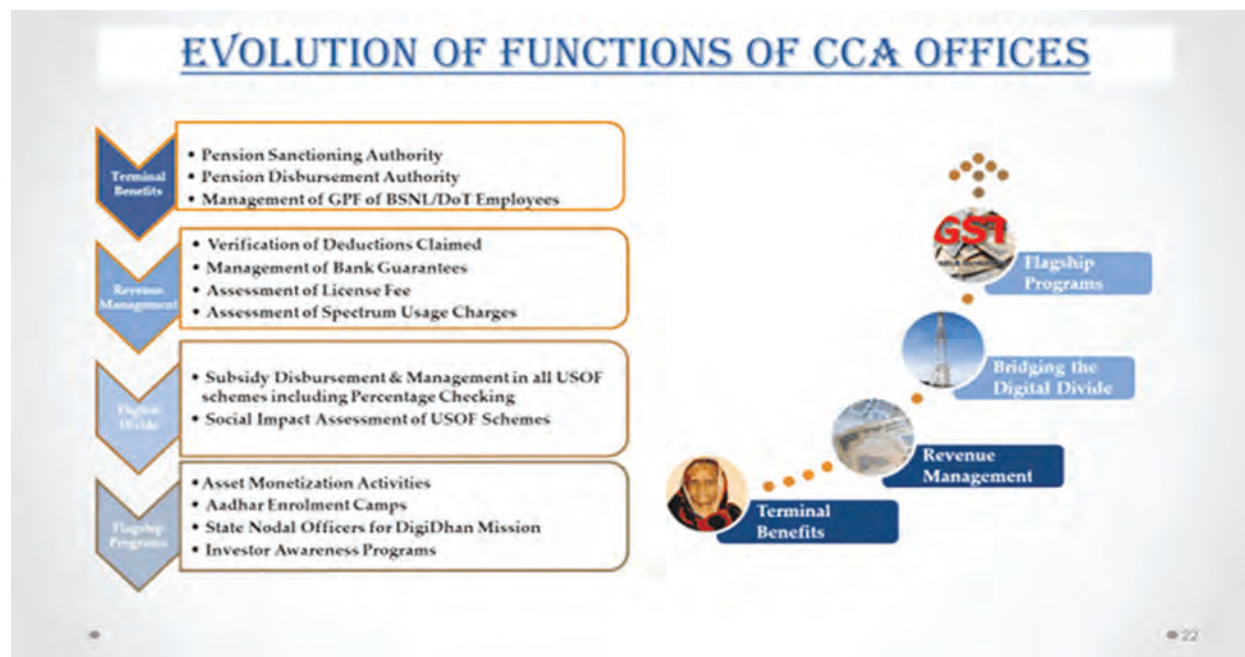
Issuance of Administrative approval and expenditure sanction of field units estimates are done by this office.

4.12 FIELD OFFICES – Pr. CCAs, CCAs and Jt. CCAs:



The field offices of DoT, Accounts and Finance wing, Pr. CsCA, CsCA and Jt. CsCA (I/C) have made sincere efforts and progress towards improving their processes, service delivery, governance and ecosystem. They have achieved this by setting up targets and executing them by adopting practices that are innovative, inspiring and result oriented. The field units have shown perseverance in carrying out innovative activities that are feasible in nature and in return resulting in smooth

functioning of the Department. The technology has played a great role in building up the innovative ideas and its use has been turned out to be productive and advantageous.



Some of the best practices and innovations that have been undertaken by the unit offices in last one year have been in the field of:

- **Pension and Pensioners Welfare (O/o Pr.CCA/CCA)**
 - (i) Pr.CCA Delhi initiated Pensioner's issues Redressal, Assistance and Care at their Home Initiative (P.R.A.C.H.I) and also Digital Pension Adalat to settle the grievances of the pensioners were conducted.
 - (ii) CCA Haryana adopted the Quality Management System (QSM ISO certification) for work in office (Pension, Cash section)
 - (iii) CCA UP(East) & CCA West Bengal implemented Digital Life Certificate by "Face Recognition" app/technology based on Aadhar Number.
- **Telecom Service Providers (O/o Pr.CCA/CCA);**
 - (i) All CCA units conducting quarterly meeting with all decentralized licensees in Telecom Circles to address their issues.
- **Initiative for effective Internal Audit (O/o Pr.CCA/ CCA)**
 - (i) First Remote Audit of CCA Uttarakhand was conducted and also All Women Audit Team conducted Internal Audit of CCA Punjab.
- **Administrative initiatives (O/o Pr.CCA /CCA)**
 - (i) Pr.CCA, Delhi was given ISO certification 9001:2015

- (ii) CCA, Rajasthan started in-house processing & filling of TDS and GST returns through software, which was earlier done through outsourcing, has resulted in huge saving of outsourcing cost as well as securing data integrity of Pensioner/employees/other stakeholders.
- (iii) CCA, Gujarat organized poster making competition across various colleges and universities of Ahmedabad on the theme of independent India@75: Self Reliance with Integrity during Vigilance Awareness Week 2021
- (iv) Swachh Bharat Mission was implemented in all field units and Pr.CCA Delhi was awarded 2nd Prize in Swachhta Sarvekshan 2021 by MCD

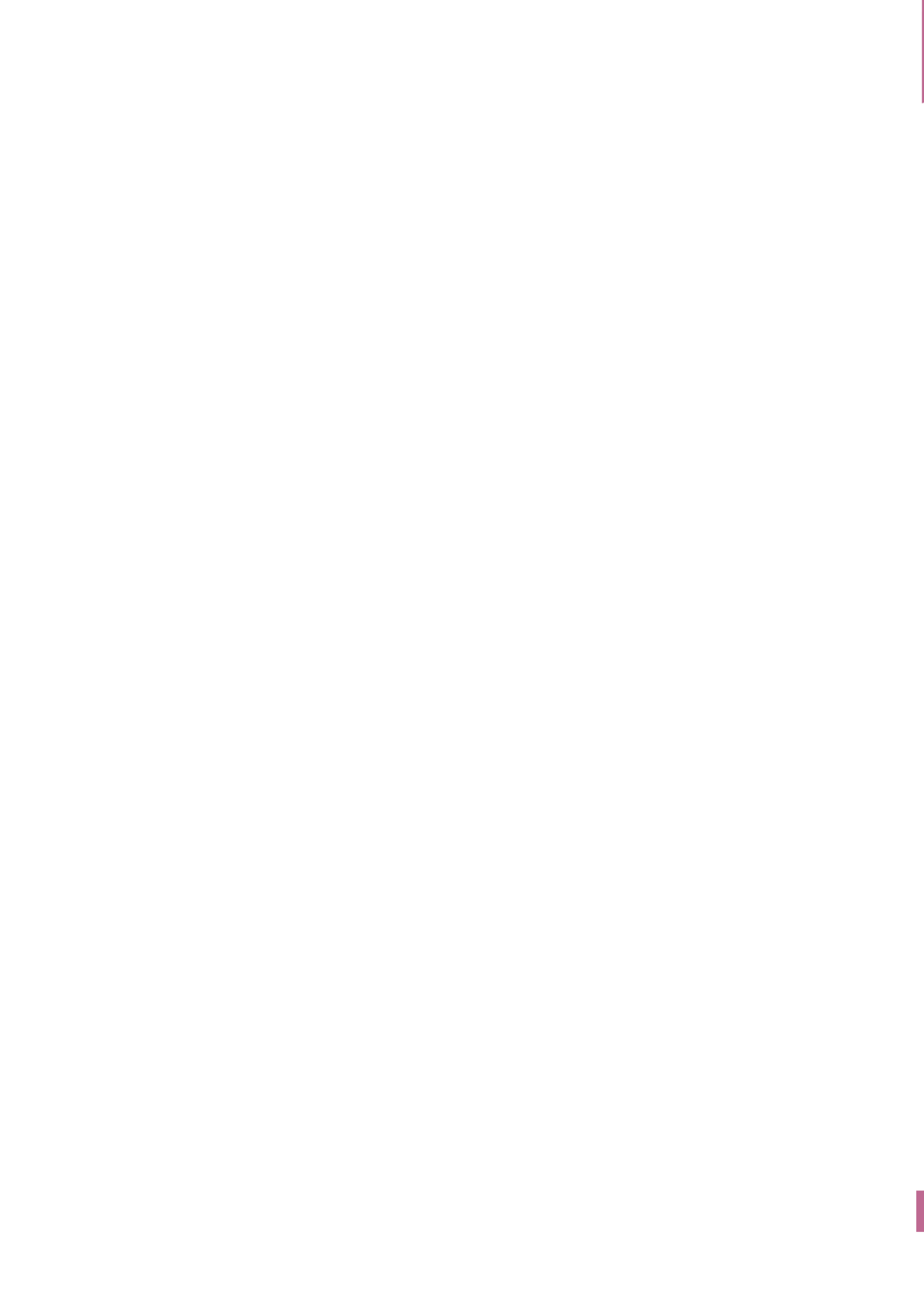
4.13 BUILDING WORKS DIVISION

P&T Building Works Group 'A' Service is an organized Group 'A' service of DoT. The officers are recruited to this service through Engineering Services Examination conducted by the Union Public Service Commission. The service comprises of three disciplines viz. Civil, Electrical & Architecture. The service is common for both, Department of Telecommunications (DoT) and Department of Posts (DoP). DoT is the Cadre Controlling Authority in respect of Group 'A' officers working in DoT & DoP.



Point to Point Box





Chapter 5

Public Sector Undertakings and Autonomous Bodies

5.1 BHARAT SANCHAR NIGAM LIMITED (BSNL)

5.1.1 Role and Functions

- a. BSNL was formed on 1st October 2000 by corporatisation of the erstwhile Department of Telecom operation & Department Telecom Services. The company has taken over the erstwhile functions of the Department of Telecom in respect of provision of telecom services across the country excluding Delhi and Mumbai. BSNL has work force of around 62,930 as on 31-12-2021. BSNL is a 100% Govt. of India owned Public Sector Undertaking.
- b) BSNL is a technology-oriented company and provides all types of telecom services namely telephone services on wireline, WLL and Mobile, Broadband, FTTH, Internet, leased circuits and long distance telecom service.
- c) The company has also been in the forefront of technology with 100% digital new technology switching network. BSNL nation-wide telecom network covers all District headquarters, Sub-Divisional headquarters, Tehsil headquarters and almost all the Block Headquarters.

Highlights

The details of physical targets & achievement for the year 2021-22, financial performance, technology, Rural Telephonic and Training etc. of BSNL are given as under: -

5.1.2 Achievement during Financial Year 2021-22 (up to 30th November 2021)

S. No	Item	Unit	Year 2021 - 22		
			Status as on 01.04.2021	Status as on 30.09.2021	Achievement up to 30.09.2021
1	Total Telephone Connection	Lakh	1249.6	1208.34	(-) 41.26
1 (a)	Wire-line	Lakh	66.49	76.48	9.99
1 (b)	Mobile	Lakh	1183.10	1131.86	(-) 51.24
2	Total Switching Capacity Mobile	Lakh Lines	1162.00	1142.50	(-) 19.50
3	Broadband Connection (Wireline +Wireless)	Lakh	252.33	230.07	(-) 22.26
4	Rural Telephone Connection	Lakh	391.88	381.70	(-) 10.18

5.1.3 Financial Performance:

The details of profit / loss figure for the year, 2018-19, 2019-20, 2020-21 & 2021-22 (up to 30.09.2021) are given as under:

(Figures in Rs. Crore)

Financial Year	2018-19	2019-20	2020-21	2021-22 (up to 30.06.2021, Un-audited)
Total income	19,321	18,906	18,595	8,150
Total expenditure	34,225	34,406	26,036	11,608
Net profit	- 14,904	- 15,500	- 7,441	- 3,458

5.1.4 Telecom Factories:

BSNL Telecom Factories(TFs) are in-house manufacturing units of the BSNL and located at Kolkata, Gopalpur, Kharagpur, Jabalpur, Bhilai, Richhai and Mumbai. Among these, TF Mumbai is 18001:2007 OHSAS certified. These factories were engaged in production of PLB HDPE Telecom Duct, Splice Closures, SIM Card, OFC Accessories, SS Drop wire, Jointing Kits, LJU cum Splicer, CT Box, Towers and other conventional items; however, post VRS, these factories are primarily manufacturing PLB HDPE Ducts.

Amidst constraints of non availability of fund, and decreasing work force, factories have tried their best to meet the requirement of various telecom goods in the BSNL field units during the year 2021-22 (April 21- Oct 21). During the period, Telecom Factories have supplied around 9400 Kms of PLB HDPE Ducts. In financial terms, Telecom Factories have achieved Rs. 45.71 Cr during the period April 21 – Oct 21. Details are as under: -

Telecom Factory BA	Achievement 2020-21 (Rs. In Cr)	Target for 2021-22 (Rs. in Crore)	Achievement April 2021 to October, 2021 (Rs. in Crore)
Kolkata	57.07	62	18.35
Jabalpur	43.36	50	8.12
Mumbai	14.88	54	17.27
Total	115.31	166	45.71

During the April 2021 to Oct. 2021, the quantitative performance of Telecom Factories are as under: -

Items	Achievement 2020-21	Target (2021-22)	Supply (April 2021 to Oct.2021)
PLB HDPE Duct (Kms)	22,557	30,000	8,908
Splice Closure	-	75,000	-

SS Drop Wire (Kms)	982.8	1,600	-
SIM Card	-	35,00,000	-
Jointing Kits	-	15,000	-
Jumper Wire (km)	125		-
BHT	1,458	1,000	
Patch Cord	2,501	-	1,367
Pigtail	515	-	18
Adopter	18,209	-	-
Attenuator	4,646	-	-

5.1.5 Training and other events

Training is ancillary system to support various business units of BSNL to develop HR growth in terms of competency/expertise in telecom for sustaining business in competitive market scenario. Each business/planning unit of BSNL is asked for advance planning of their training requirements in tune with their Corporate Plan 2021-22. The activities include interacting with various business/planning units of BSNL for optimizing the in-house training courses / modules schedules in line with present/forthcoming corporate plans of BSNL.

- (a) **On Job Training (Staff Trained):** BSNL has 09 Telecom training Centers countrywide comprising of two APEX level training centres namely:
- Advanced Level Telecom Training Centres (ALTTC), Ghaziabad, UP.
 - Bharat Ratna Bhim Rao Ambedkar Institute of Telecom Training (BRBRAITT), Jabalpur, MP.

BSNL Staff attended various in-service courses / workshops / FTPs / Webinars conducted by various Training Centers for the period April, 2021 to September, 2021. A total of 6,233 staff was trained (5,795 executives and 438 non-executives) during this period through various training centers for total of 29,495 mandays (27,948 mandays for executives and 1,547 mandays for non-executives).

(b) **International Relations**

- **Foreign Deputation:** During April to September 2021 none of staff were deputed due to COVID-19 and restrictions of the Government on foreign tour.
- **International Training Conducted at BSNL Training Centers:**

ITU Trainings:

- ALTTC selected as ITU Centre of Excellence for Asia-Pacific Region for 2019-22 Cycle (4 Years) in three areas i.e. Fixed and Wireless Broadband, Internet of Things, Cyber Security. ALTTC has conducted online-training during April 2021 to September 2021 for 5G IoT in AI Smart City (Total candidates- 72).

APT Trainings:

ALTTC has conducted online-training as allotted by Asia Pacific Telecom (APT) for period April 2021 to September 2021 as below:

- ALTTC: Evolution of Future Networks and Ultra Broadband Internet (Total candidates-13).

(c) Induction Training:

A total of 35 candidates received induction training during April 2021 to Sept 2021.

- (d) Training Revenue:** BSNL training centers provides wide range of training programs to various levels of non-BSNL trainees, viz., students/individuals, Govt. or Pvt. Organizations, etc on payment basis by optimum utilization of training resources.

During the period from April 2021 to September 2021, revenue of Rs. 86.62 lakhs were generated by imparting training to non BSNL trainees and by sharing of training infrastructure.

(e) Skill Development:

Skill Development Scheme of State Governments:

- RTTC Trivandrum & Kerala Circle has bagged the contract from KASE for skilling candidates under CSSM scheme of PMKVY 2.0 Program. Target of 60 candidates have been assigned for FY 2021-22. RTTC Trivandrum has trained 23 candidates under this scheme.

5.1.6 Development of Telecommunication Facilities In Selected Areas

- (a) Special Component Plans:** Annual Plan of BSNL pays special emphasis on accelerated growth of telecommunication facilities under Special Component Plans in North Eastern Region.

- (b) Development Status:** - Achievement during the financial Year 2020-21 of the North East Region are as follows: -

S. No	Items	Status as on 01.04.2020	Status as on 31.03.2021	Achievement during the year 2020-21
1	Total Switching Capacity (Lakh Line)	57.15	57.39	0.24
1 (a)	Wire-line(Lakh Line)	8.80	8.61	(-) 0.19
1 (b)	GSM(Lakh Line)	48.35	48.78	0.43
2	Total Telephone Connection(Lakh)	44.69	46.04	1.35
2 (a)	Wire-line(Lakh Line)	1.91	1.54	(-) 0.37
2 (b)	Mobile(Lakh Line)	42.78	44.50	1.72
3	Broadband (ADSL) in Lakh.	0.79	0.38	(-) 0.41

(c) **Network Status of NE Region States:** - The status of telecom facilities as on 30.09.2021 in each of the state of North East Region is shown in the following table:-

S. No.	Name of State	Telephone Exchange (Wire-line)	Total Capacity (Wire-line + Wireless) in Lakh Line.	Total DELs (Wire-line+ Wireless) In Lakh.	Broadband Connection (Wire-line+ Wireless) In Nos
1	Assam	538	24.539	31.753	2,87,469
2	NE-1	162	13.874	10.614	2,06,913
2 (a)	Meghalaya	43	4.517	3.456	70,657
2 (b)	Mizoram	41	2.711	2.592	52,353
2 (c)	Tripura	78	6.646	4.566	83,903
3	NE-II	140	12.486	3.491	1,23,659
3 (a)	Arunachal Pradesh	68	5.471	1.800	63,368
3 (b)	Manipur	41	4.081	0.903	32,054
3 (c)	Nagaland	31	2.934	0.788	28,237
4	Sikkim	32	1.561	0.509	15,516
	NE Region	872	52.460	46.367	6,33,557

5.1.7 Welfare Measures/ Facilities/Sports Undertaken By BSNL

BSNL is running various welfare programmes for its employees and their family members as part of BSNL's welfare measures for the year 2021-22. Budget allocation of Rs 5 crores for various welfare programme for the year 2021-22 is under process. Welfare grants to BSNL Circles Staff Welfare Boards has to be released within next three months i.e. January to March 2022 for the year 2021-22.

Some of the salient welfare schemes are as below: -

- 1). Grant of scholarships / Book Awards to the wards of the BSNL Employees.
- 2). Farewell function is organized for employees retiring on superannuation / VRS. Due to epidemic covid 19, the farewell function is postponed till further orders.
- 3). Immediate financial assistance of Rs. 20,000/-to the family of the BSNL employees who die in harness irrespective of basic pay.
- 4). Special Dispensation: Relaxation of 10% marks is given in respect of students who are wards of SC, ST, OBC & Physically Handicapped employees in the grant of Scholarships, Book Awards. In the case of girl students 15% relaxation is being given for grant of scholarship/book awards.

- 5). Every year Bharat Sanchar Seva Padaks are given to those BSNL employees who have shown exemplary / meritorious performance. This award is given to six categories of employees (Executive-2 & Non Executive-4). Similarly, the best Customer Service Centre and the Best Maintained Telephone System awards are given to concerned Customer Service Centers / SSA respectively. Now it is under process in this year.
- 6). Covid-19 guidelines have been followed properly in Pan India BSNL offices.

Some of the salient Sports activities schemes are given below: -

1. BSNL is encouraging its employees to participate in various sporting activities by annually organizing 15 games and one cultural competition. Due to administrative reasons All India BSNL Sports Tournaments and Cultural Meet 2020-21 has not been organized. However, the meritorious sports person is allowed to participate in national level tournaments for year 2021-22.
2. Sanchar Krida Award / Cash Awards are given to sportsmen who excel at National and International level. BSNL Sports Board is affiliated with 10 sports Federation of India.

5.1.8 Staff Strength

Total number of working employees as on 31.12.2021 (as per ERP Data base).

Group	Number of employees	Employees		OBC	Ex-Service-men	Differentially abled Persons	Women Employees
		Scheduled Caste	Scheduled Tribe				
Executive	29,835	6,023	2,190	8,080	110	650	4,590
Non-Executive	33,095	6,965	2,171	4,983	47	269	7,340
Total	62,930	12,988	4,361	13,063	157	919	11,930

Number of Disabled employees as on 31st Dec. 2021 is 919.

5.2 MAHANAGAR TELEPHONE NIGAM LIMITED (MTNL)

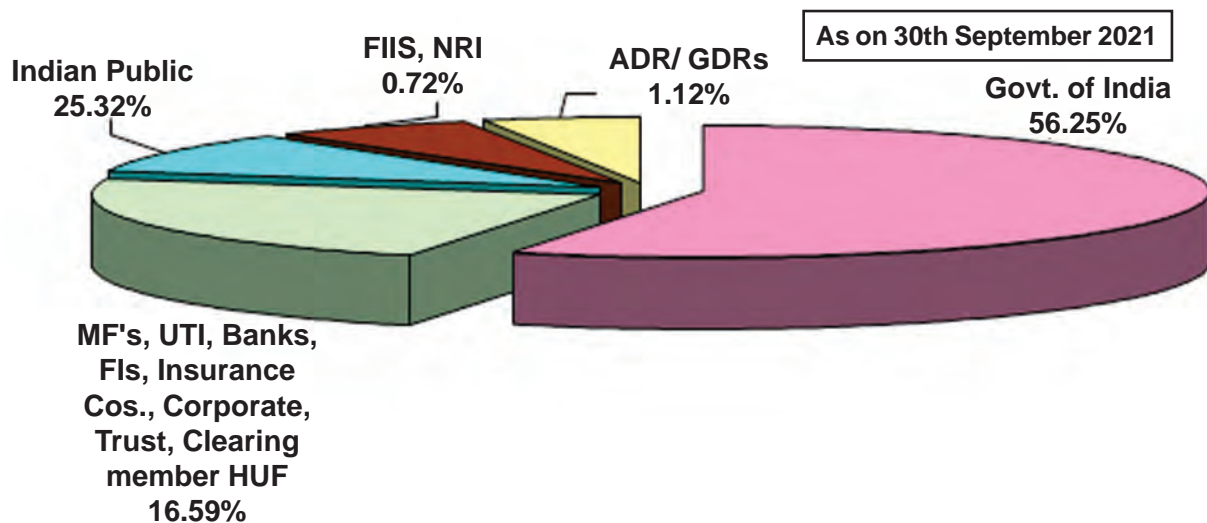
5.2.1 Mahanagar Telephone Nigam Limited (MTNL) was incorporated on Feb.28, 1986 under the Companies Act as a wholly owned Govt. Company and on April, 01 1986, assumed responsibility for the control, management, operation of the telecommunications services in the two Metropolitan cities of Delhi and Mumbai. The jurisdiction of the MTNL comprises the city of Delhi and the areas falling under the Mumbai Municipal Corporation, New Mumbai Corporation and Thane Municipal Corporation for providing fixed line and WLL based limited mobility services. For Cellular services the company has the license to provide services in Delhi including NCR (towns of Ghaziabad, Faridabad, Noida and Gurgaon) and in Mumbai including Navi Mumbai, Kalyan & Dombivili. MTNL is a complete telecom solution provider, providing the following wide range of services to customers:

- (i) Basic Telephone Service
- (ii) Cellular Mobile Service (both 2G / 3G GSM)
- (iii) FTTH
- (iv) ISDN
- (v) Broadband
- (vi) Leased Circuits
- (vii) IN Services
- (viii) Wi-Fi hot spots
- (ix) Data Center Services

In addition, MTNL is providing a host of value added services to its wireline & wireless customers. VAS is normally a third party item & is provided on franchise model on revenue share basis as & when available.

5.2.2 The authorized capital of the Company is Rs 10,000 crores. The paid up share capital is Rs 630 crores divided into Rs 63 crores share of Rs 10 each. At present, 56.25% equity shares are held by President of India & his nominees and remaining 43.75% shares are held by FIIs, financial institutions, banks, mutual funds and others including individual investors.

Share Holding Pattern



5.2.3. Physical Performance

Details of achievements of MTNL Delhi & Mumbai during 2021-2022 (upto October 21) are as follows:

Achievements

S.No.	Items	Achievements 2021-22 (upto Oct'21)	
		Delhi	Mumbai
1	DELs (includes Landline, GSM & Broadband) (Net)	(38,413)	(1,49,078)
2	FTTH(Net)	791	360
4	Optical fiber Cable(in Route Kms)	106.815	20.096
5	Optical fiber Cable(in Fiber Kms)	3213.24	316.404

MTNL has modernized its network by incorporating state of art technologies and adopting customer friendly approach. The company has been constantly seeking ways and means to provide the telecom services of International standard. Status as on 31st Oct, 2021 of total Network Capacity & subscriber base in respect of Fixed line, GSM, & Broad band services are summarized below-

Sl.No.	Services	Network Capacity	Subscriber base
1	Fixed Line	48,81,215	27,85,640
2	GSM	56,00,000	32,65,163
3	Broadband	16,33,756	6,42,743
4	FTTH (in no. of ports)*	2,368	38,066

*each port can provide 32 No. of connections

As can be seen from above, enough network capacity is available and all the services which are being provided by MTNL to its' customers are available on demand and there is no waiting list for any of the services.

5.2.4 Financial Performance

The Financial Performance of MTNL is as under:

(Rupees in crore)

Item	2018-19	2019-20	2020-21	2021-22 (upto Sep-21)
Income from Services	1987.80	1536.36	1387.71	606.88
Other Income	618.91	690.66	485.16	234.83
Total Income	2606.71	2227.02	1872.87	841.71
Expenditure	5996.91	5922.70	4332.87	2185.72
PBT	-3390.20	-3695.68	-2459.19	-1343.25
Net Profit	-3397.59	-3695.68	-2461.26	-1343.25

Despite stiff competition from other operators, MTNL has achieved a financial turnover of Rs. 841.71 Crore during the year 2021-22 (upto sept-2021). During the said period MTNL posted a loss of Rs. (1343.25) crore basically due to the major portion of working expenses goes toward staff cost (around 45%).

Capital Expenditure on Technology

During the year 2021-22 (upto November-2021) MTNL has spent an amount of Rs.103.74 crore (Provisional) on the Capital Expenditure. This was achieved largely through other resource, market borrowing generation.

5.2.5 Different Services and projects

MTNL has planned several initiatives/ projects to improve its network capabilities and provide better quality of service to its customers. Some of the salient initiatives and projects are as below.

(a) Mobile Network

- **Launching 4G Services in Delhi and Mumbai:** In a modification to a previous decision, Group of Ministers (GoM) constituted in the matter of “Revival of BSNL and MTNL” has decided to allot spectrum through equity infusion by Government of India, for providing 4G service to BSNL for Delhi and Mumbai (MTNL Areas) in place of MTNL.
- **Handover of O&M of Mobile Services to BSNL:** Operation and Maintenance (O&M) of MTNL Mobile services has been handed over to BSNL in Delhi w.e.f. 01.04.2021 and in Mumbai from 01.09.2021.

(b) Wireline Network:

- **Upgradation of the MPLS Network:** MTNL is planning to upgrade the entire MPLS network and make it future ready to handle the growing traffic needs of FTTH and 4G network.
- **FTTH Revenue Share Policy:** MTNL had worked out, finalized and made operational the policy to engage partners on revenue share basis to extend its FTTH services. The Policy has been significantly liberalized by relaxing entry level barriers and removing clauses regarding turnover eligibility criteria, rollout obligations and Performance Bank Guarantee. Significant upward revision to the tune of 45% has also been carried out for the Revenue share of the partner. In the post VRS scenario challenges were observed in the O&M of the MTNL own FTTH connections due to lack of field staff. Accordingly, policy was amended to allow partners for maintenance of MTNL owned FTTH connections at 10% revenue share and one time provisioning charges of Rs 1500.

5.2.6 Implementation Status of the Revival Plan:

Government on 23-10-2019 approved the proposal of DoT for revival of BSNL and MTNL by:

DEPARTMENT OF TELECOMMUNICATIONS

- a) Reduction in the employee cost by offering VRS on Gujarat model to the employees of age 50 years and above.
- b) Debt Restructuring: Sovereign Guarantee Bonds of Rs 6500 Cr of tenure of 10 years to be raised and serviced by MTNL.
- c) Monetization of Core and Non-Core Assets to offset the Debt burden.
- d) Allotment of spectrum for 4G services through capital infusion by the Govt.
- e) Merger of BSNL and MTNL. MTNL to be made subsidiary of BSNL to derive the synergy in network operations and sales.

Status of the progress made in the implementation is given below:

a) Reduction in the employee cost by offering VRS on Gujarat model to the employees of age 50 years and above.

- I. MTNL Voluntary Retirement Scheme based on Gujarat Model was successfully implemented in the year 2020. All regular and permanent employees of MTNL who are 50 years and above were eligible for VRS. Out of 16361 eligible employees 14387 (88%) opted for the VRS, making it a successful scheme. After the VRS, MTNL was left with only 4321 (23%) employees as on 01.02.2020 from 18708 employees. Staff strength of MTNL as on 01.04.2021 was 3888 (1288 Executives & 2600 non-Executives).
- II. After the VRS for proper running of the organization, many functional and structural changes have been adopted by MTNL. MTNL has adopted SLA based maintenance of its external plan and Transmission network and through revenue sharing models.
- III. Reduction in staff cost and other measures taken for MTNL revival has started showing its positive outcomes with MTNL becoming EBITDA positive after a period of more than 5 years. Total annual saving due to reduction in staff cost to the tune of Rs. 1600 Crore.

b) Debt Restructuring: Sovereign Guarantee Bonds of Rs 6500 Cr of tenure of 10 years to be raised and serviced by MTNL.

- I. Sovereign Guarantee Letter was received from MoF on 08.07.2020. MTNL on 12.10.2020 raised Rs 4361.40 Cr @ 7.05 % through SG bonds for debt restructuring.
- II. MTNL raised the remaining amount of Rs 2138.60 Cr @ 6.85 % through SG bonds on 21 Dec 2020

c) Monetization of land / building assets following DIPAM guidelines to meet various requirements.

- I. MTNL has real estate assets in Delhi & Mumbai having approximate valuation of Rs. 57,000 Crs. The tentative valuation of the properties has been based on various

assumptions on the basis of Circle rate of 2014 for Delhi and Ready Reckoner rate 2018-19 for Mumbai. The Government on 29.10.2019 approved monetization of land/building assets of MTNL for approx. Rs. 23,007 Cr in accordance with DIPAM guidelines for asset monetization.

- II. The Presidential approvals for monetization of properties has been obtained in different phases. In first phase the properties worth Rs. 6228.14Crore was offered to DIPAM for monetization. Ultimately due to various reasons, finally only three properties of Mumbai are being considered for auction by DIPAM. MTNL has received the Presidential approval of Rs. 18064.14 Crore for Phase-I & Phase-II properties.

Monetization of Tower and fiber assets using an appropriate model including leasing with the aim to maximize the returns. MTNL has rented out its towers for which annual revenue of about Rs. 59 Cr is received.

d) Roll out of 4G Services.

- I. The GoM constituted for the Revival of MTNL / BSNL in the meeting held on 21.12.20 has approved the allocation of spectrum for providing 4G services, through equity infusion by Gol, to BSNL for Delhi & Mumbai in place of MTNL and to increase the authorized Capital of BSNL from existing Rs 32,500 Cr to Rs 40,000 Crore
- II. **4G Tender:** Tender to be floated by BSNL including MTNL's requirement of 7000 RANs (Delhi 4000 and Mumbai 3000) MTNL has shared its Schedule of Requirements (SoR) with BSNL for inclusion of items in their phase IX tender.

e) Merger of BSNL and MTNL. MTNL to be made subsidiary of BSNL to derive the synergy in network operations and sales.

- I. Due to financial reasons, including high debt of MTNL, the merger of MTNL with BSNL has been deferred. However, increased synergy is being implemented between MTNL and BSNL in day-to-day Operations.
- II. **Synergy between MTNL & BSNL to reduce OPEX and CAPEX:** Several Synergy/ Integration measures have been undertaken or being undertaken between MTNL and BSNL to reduce the OPEX & CAPEX. The major steps are summarized as under:

(a) Synergy with BSNL in Mobile Services

- **Handover of O&M of Mobile Services to BSNL:** Operation and Maintenance (O&M) of MTNL Mobile services has been handed over to BSNL in Delhi w.e.f. 01.04.2021 and in Mumbai from 01.09.2021.

(b) Operational Synergy:

- To increase operational efficiency and to reduce AMC Cost, following network elements of BSNL have already been integrated and utilized:

DEPARTMENT OF TELECOMMUNICATIONS

- BSNL's OMCR & CNMC, EIR, SSTP
 - MNP gateway, Consent Gateway, DLT.
 - Routing of International SMS through BSNL firewall.
 - Bandwidth between Delhi & Mumbai and with MNP Clearing House.
- IV. Synergy with BSNL in Other Services
- a. Following operational Synergy with BSNL has been undertaken (Other than Mobile Services):
- i. Common NMS for MLLN.
 - ii. Spare switch/SDH cards and Qty 04 MPLS Routers diverted by BSNL.
 - iii. Testing of voice and data with BSNL NGN (0.5K LMG) is completed.
 - iv. Modalities for testing and migration of FTTH VoIP calls from existing CDoT NGN switch to BSNL CDoT Max NG are underway.
 - v. A Common CDR based billing and CRM (Customer Relationship Management) system for fixed line services for both MTNL and BSNL is under implementation.

f) Utilization of MTNL Assets

MTNL has been making continuous effort to maximize revenue from renting of its Buildings/ quarters and monetization of various approved land parcels in Delhi and Mumbai through Department of Investment and Public Asset Management (DIPAM).

The revenue generated from rental of properties in the Financial Year 2020-21, was INR 360.11 crore Further, the rental income generated from properties for the current Financial Year 2021-22 (upto September 2021) is INR 178.52 Crore, expecting the rental revenue for FY 2021-22 to surpass previous years.

On approval of the President for monetization of various land parcels in Delhi and Mumbai, International Property Consultant (IPC) for 5 land parcels and 398 quarters of MTNL has been appointed. MTNL along with DIPAM have floated an e-Auction on MSTC platform for two properties of MTNL viz. 20 Flats at Raheja Classique, Oshiwara, Mumbai and Vasari Hil Plot, Mumbai. The reserved price for the e-auction for all the 20 flats of Oshiwara flats is INR 20.35 Cr and Vasari Hill Plot is INR 270 Crore The e-auction process is expected to be completed by early 2022.

5.2.7 Joint Ventures and Subsidiary Companies

5.2.7.1 Mahanagar Telephone (Mauritius) Ltd.(MTML)

MTML is a 100% owned subsidiary of MTNL in Mauritius. The company is having license for Mobile Services, International Long Distance (ILD) Services and Internet Services. In a small Island

country, having a population of around 12.5 Lacs only and having Mobile Tele-density of more than 150%, MTML has been able to successfully position itself with Customer Centric Services. With patronage of more than 3,75,000 customers, MTML is able to compete well in a saturated telecom market. The company continues to be in profit for 12th Consecutive Year.

MTML is offering Mobile Services on latest state of the art technology having 4G (LTE) Services covering more than 90% of the total population and 2G/3G Network all over the Island. With increased coverage of high speed data services on 4G and migrating more and more subscribers to its 4G network, MTML customers are now generating more than 1400 TB of data every month. Data download has multiplied by more than 35% during the financial year 2021-22.

MTML became the first operator in Mauritius to launch e-SIM Service which has helped it in acquiring higher ARPU customers. MTML has also acquired licence for 5G Services in Mauritius recently. Action on procurement of equipment has been started and it is expected to launch 5G Services in commercially important areas during 2022-23.

MTML has earned Gross Revenue of approximately MUR 288.35 Million during the period of Apr 2021 to Nov 2021 in current financial year as against MUR 287.5 Million during corresponding period of last fiscal year.

The company has improved its revenue marginally despite severe challenges faced during this period. Due to Covid-19, Mauritius suffered from lengthy curfew/lockdowns leading to reduced business activity. Being an Island, 1/3rd economy of Mauritius used to run on Tourism Sector and Roaming used to be a big source of revenue for the company in past years. However, due to Covid-19, Tourism Sector was almost closed due to which Roaming Revenue declined by almost 85%. Other International Services like ILD, A2P SMS also suffered severely due to lack of economic activity. Despite severe depression in national economy due to Covid-19 and absence of Tourism Business, Gross Revenue of more than MUR 460 Million is expected during the Current Financial year.

MTML has established its own brand CHILI in the Republic of Mauritius as trusted total telecom service provider. With more than 260 BTSs operating across the island, the quality of service is to the satisfaction of customers. Collocation with other telecom providers for mobile network has also started opening a new source of revenue for the company. MTML has been introducing innovative tariff packages to match current market dynamics with the state of art technology and is quite popular especially among youth.

MTML has also diversified into retailing of Smartphones and the business has picked up well during past two years. During 2020-21, total Smartphone Sales reached MUR 31 Million which is expected to higher during current financial year.

All the expenses of the company are paid from its own internal resources. The CAPEX for procurement of equipment is met from its own internal resources. MTML is operating from its own building, constructed from internal resources, situated in Cyber City, Mauritius which is considered to be the heart of IT hub in Mauritius. There is no debt liability on the Company.

The company is managed by CEO, CFO and 10 more officers, all on deputation from the parent company. Other operations are managed through local outsourcing.

5.2.7.2 Millennium Telecom Ltd. (MTL)

Millennium Telecom Ltd. (MTL): a wholly owned subsidiary of Mahanagar Telephone Nigam Limited, a Government of India CPSE, registered office in New Delhi. MTL was incorporated in February 2000.

ICT related Services being offered by MTL include Cloud services, Wi-Fi solution; project on e-governance, Managed services, Turnkey ICT solution, GIS based services, capacity building and skill development etc. MTL earned a net profit of Rs. 14.17 lakhs for the period ending 31st March 2021.

MTL's customer list includes Air India, J & K Government, Central University-(Mahendragarh) Haryana, UP Building and Other Constructions Workers Welfare Board (UP BOCWWB), Lucknow, Thane Municipal Corporation CIDCO, Film Division of India, Insurance Institute of India etc. MTL is also expanding its portfolio of service for providing generalized as well customized solutions to suit government and semi government institutions.

MTL along with its Empanelled Business Development Associates (BDAs) has recently introduced the cloud services for the Government customers on back to back basis.

5.2.7.3 MTNL STPI IT Services Ltd (MSITSL):

MTNL STPI IT Services Ltd. (MSITSL) is a 50:50 Joint Venture company of Mahanagar Telephone Nigam Limited (MTNL) and Software Technology Parks of India (STPI). MSITSL was incorporated on 31.03.2006 under the Companies Act, 1956, with authorized Capital of Rs. 50 Crores.

MSITSL has established the physical infrastructure of state of the art Tier III Data Center at Chennai on space taken on lease basis from STPI. The Data Center has server farm area of around 3500 sq. ft. and the total investment made for setting it up was Rs.477 lakhs. This Tier III Data Center is maintaining 99.98% uptime on 24X7.

The commercial operation of the Data Center commenced in 2009. At present, following customers have co-located server racks for their projects and operation in the MSITSL Data Center.

- The Ministry of External Affairs (MEA) has hosted Passport Seva Project at MSITSL Data Center through M/s TCS.
- The Directorate General of Employment & Training (DGE&T) in Ministry of Labour & Employment has hosted National Career Project through STPI at MSITSL Data Center.
- M/s Repco Bank Ltd has co-located server racks for banking operation.

MSITSL is in the process of selecting suitable consultant for expanding the Data Center server farm area by around 1200 sqft as per Tier-III standard. Besides that, MSITS has been offering 31 Nos workstation facilities to Repco Home Finance Ltd. through STPI-Chennai

5.2.7.4 United Telecom Ltd. (UTL):

A joint venture of TCL, TCIL, NVPL (Nepal) & MTNL set up in Oct, 2001 with MTNL stake of 26.68%. The company provides Mobile/ILD/data services in Nepal. Company is making losses and has a No customer count as on 11th December, 2021. MTNL, along with TCL and TCIL, is in the process of exiting from the Company.

g) Human Resources

- **Manpower:** The total employee strength of MTNL, including various employee categories, as on 30.09.2021 is 3794. Employees belonging to Scheduled Castes are 890, which constitute 23.45% of the total employees. The total number of employees belonging to Scheduled Tribes is 120 which is 3.16% of total employees.

Manpower details:

Group	Total working strength	SC	ST	Women	Persons with Disabilities
A	218	51	23	25	0
B	1013	194	44	185	19
C	1602	355	33	317	2
D	958	290	20	228	2
TSM	3	—	0	0	0
Total	3794	890	120	755	23

h) Training: -

At present MTNL has two state of the art training centers located in New Delhi and Mumbai: -

I. The Institute of Telecom, Technology & Management (ITTM) Shadipur, New Delhi: -

ITTM, engaged in imparting induction training and short duration training to its officers and employees in the field of Telecom, IT, Computer System and Management.

In addition to this, ITTM also conducts Industrial Training and visits from Engineering Colleges and Various Schools of India. From April 2021 to November 2021, total 440 internal trainees were trained in e-Mode at ITTM in the current scenario of COVID-19 environment.

II. Centre For Excellence In Telecom Technology And Management (CETTM),

The Centre for Excellence in Telecom Technology & Management (CETTM), an ISO 9001:2015 certified institute, is situated at Technology Street, Hiranandani Gardens, Powai, Mumbai.

CETTM responded to the COVID-19 pandemic situations by conducting trainings in online / e-mode format. CETTM successfully conducted in all 21 training programs (online via e-mode) and trained 231 in-house personnel achieving a figure of 251 Trainee days from Apr-2021 to Nov-2021. CETTM is to conduct classroom mode trainings w.e.f. Jan-2022 adhering to all the Government SOPs and Guidelines. CETTM initiated leasing of its infrastructure on short duration basis for the shooting of films, web series by prominent production houses and generated business of Rs.50 Lakh so far for the F.Y.2021-22. Further, avenues of generating revenue through other production houses are also being initiated and in pipeline.

5.3 ITI LIMITED (ITI)

5.3.1 Introduction

ITI Limited is a public sector undertaking in the telecommunications technology segment established as a departmental factory in 1948. The company was set up at Bangalore (Karnataka) and was incorporated on 25.01.1950 under the then Mysore Companies Act, 1938 and later converted as the first PSU. The Government of India holds majority equity stake in the Company. ITI has its Registered & Corporate Office located at Dooravaninagar, Bangalore-560016. ITI over a period of time, widened its manufacturing bases in Naini, Rae Bareli and Mankapur (Uttar Pradesh), Palakkad (Kerala) and Srinagar, All the manufacturing Plants are accredited with ISO 9001-2015 and ISO 14001-2015 standards.

5.3.2 Capital Structure

The Authorized Share Capital of the Company as on 30th September, 2021 was Rs.3500 Crore (Rs. 2800 Crs for Equity and Rs. 700 Crs for Preference shares) The paid-up Share Capital as on that date was Rs.933.52 Crore. (Rs. 93.35 Crs equity shares of Rs.10/- each). The percentage share of Government of India in equity as on 30th September, 2021 is 90.06 %.

5.3.3 Revival Package/ Projects

The revival package of Rs 4156.79 Crores (Rs1892.79 Crores as grant-in-aid and Rs 2264 Crores as Capex Fund in the form of equity) as approved by the Government in February 2014 for ITI Limited, has helped in the Company's turnaround. The entire grant-in-aid has been received. ITI has received Rs 874 Crores of the Capex Fund in tranches until financial year 2020-21. Capex Fund amounting to Rs 105 Crores was received during FY 2020-21. Rs 80 Crores Capex Fund has been provisioned in budget for FY 2021-22.

The Capex Fund has been invested for upgrading the manufacturing infrastructure at various units of ITI to cater to the need of emerging technologies in the domain of Telecommunications, Electronics and ICT products, services & solutions. The State-of-the-art infrastructure established under revival package funds has boosted the manufacturing strengths to cater for domestic market demands under Make in India mission of Government of India. These projects have helped ITI Limited to regain its manufacturing strength.

5.3.4 Highlights of Performance During 2021-22

I. Financial Performance

- (i) ITI has achieved a Turnover of Rs. 698 Crore for half year ending 30.09.2021.
- (ii) The order book position of ITI (Balance orders) is about Rs.9724.23 Crore as on 15.12.2021.

II. Major Highlights

ITI Limited has received Work Order from Tamil Nadu Fibrenet Corporation Limited (TANFINET) for Planning, Survey, Supply, Installation, Commissioning, Testing, End to End Integration, Operational & maintenance of Optical Fibre Network (OFN) and Electronics for BharatNet Phase-II in Tamil Nadu under Package-D. The value of the order is around Rs 432.96 Crores.

III. Production/ Manufacturing & Service Highlights

- i. ITI Limited- Naini Plant has undertaken manufacturing of 18995 nos of SPV module of 325Wp for establishing solar power plant project for captive use at ITI units at Raebareli (1.5 MW capacity), Naini (300 KW), MSP – Lucknow (100 KW), Palakkad (1.2 MW), Bangalore (1.2 MW), Mankapur (1.5 MW) and Corporate office (100 KW), to make savings in electricity bill to the extent of 30%. Out of 18995 nos the plant has manufactured 14555 nos so far and balance manufacturing is under progress. The Plant has also manufactured 20000 nos. of 60 watt SPV Panel for MahaNet project.
- ii. **HDPE Duct:** 7 HDPE Duct manufacturing lines are established at Rae Bareli, 3 lines in Mankapur and 2 each in Palakkad & Bangalore with annual capacity has been enhanced to 56,000 Kms with this ITI has manufactured and supplied 10,000 Kms HDPE Duct for Mahanet project and 433 Kms for Andaman & Nicobar projects under Bharatnet. Further, 9,000 kms of Duct has been manufactured for ASCON Phase IV project. 1850 Kms of HDPE Duct being manufactured by Palakkad Plant.
- iii. **OFC:** Optical Fibre Cable (OFC) manufacturing lines are established with an annual capacity of 30,000 KMs at Raebareli plant. ITI has planned to enhance the capacity. ITI is executing order received from MTNL (900 Kms), ASCON (11,300 Kms) and TANFINET (11993 Kms).

IV. Project Highlights

ASCON Phase IV Project: The Company has signed contract with Ministry of Defence for execution of the mega order of Army Static Switched Communication Network (ASCON) Phase IV project worth Rs 7,796.39 crore (CAPEX & OPEX). It includes installation, commissioning and maintenance of telecom equipment, NMS, mobile nodes and civil works for providing the complete infrastructure at various sites and roll out of optical fiber network.

V. BharatNet Ph. II project

- a) **Gujarat Net Project:** ITI is executing a turnkey project for provisioning of broadband solution across Gujarat State. The project consists of laying of approx. 18,212 KMs of OFC, supply of DWDM (Dense Wave Division Multiplexing) equipment, optical transmission and access equipment and to provide connectivity to 4233 Gram panchayats to enable around 2 crore rural population to avail the Broadband connectivity and establishment of network comprising DWDM network, L3 switches, Fibre monitoring system, Data Centre and network operating Centre (NOC). The Project value is approx. Rs. 1417 crore.
- b) **MahaNet Project:** ITI is executing a turnkey project for provisioning of broadband connectivity across Maharashtra State. This project includes laying of 19,351 Kms Underground (UG) and 20,259 Km Aerial (OH) OFC, Establishment, Commissioning and Maintenance of Network comprising of IPMPLS (IP Multi-Protocol Label Switching) Routers, Switches, Solar equipment, Microwave radio, Wi-Fi hotspots and Network Operating Centre (NOC). The Total Project value is around Rs. 3111.67 Crore. As of date now OFC laying (UG and OH) work of around 22,743 Km lengths and number of GPs lit up is 1440 nos. ITI has executed the project with total value of Rs. 2441.93 crore. Out of this, turnover of Rs 1367.46 Crore is achieved in FY 2020-21 and planned Rs. 729.08 crore for FY 2021-22.
- c) **Andaman & Nicobar**
- ITI has received order worth Rs. 37.27 Crore from BBNL for implementation of BharatNet Phase-II project including supply, installation, testing and commissioning of OFC (underground & Aerial), GPoN Network and Radio Network as well as O&M (operation & maintenance) across the Union Territories of Andaman & Nicobar. Revenue of Rs. 23.86 Crs has been generated through this project in FY 2020-21 and Rs.0.44 Crore has been achieved for FY 2021-22.
- d) **NFS:** Prestigious NFS Project for Package G & F for Construction of Exclusive Optical NLD Backbone and Optical Access route on turnkey basis for Defense network being executed by ITI Raebareli and Mankpaur has booked a turnover of Rs.108.95 Crore during FY 2020-21.

VI. R&D activities for development of new products

In Financial year 2021-22, the development of products and solutions like crypto products, Multi Post EVM, Power supply modules, Algorithms for various crypto products etc are in progress in R&D, Bangalore. R&D has initiated development of new products like Smart Energy Meter, Digital Mobile Radio, Remote Voting Solution etc.

VII. Future Prospects

- To supplement country's requirement of self-reliance in the area of Telecommunication, recently ITI has entered into an MoU with various technology partners.
- ITI has applied and received approval for PLI scheme with SIDBI. Under this scheme ITI is planning to manufacture 4G Remote Radio Units (RRUs) with an investment of 120 Cr between the periods 2021 to 2025.
- ITI signed a ToT with C-DOT for transfer of technology for manufacturing of 4 port Mini OLT, ONT23, ONT26, GPON, and Mini Public Data Office (PDO a Wi-Fi device) products.
- ITI has signed the ToT agreement with VSSC/ISRO Trivandrum for the Manufacturing of portable Medical Oxygen Concentrator (called Shwaas).
- ITI has also diversified into development of medical electronics devices. ITI is manufacturing and supplying Face Shields, Face Masks, Face Mask Vending / Disposal machines, Manual Hand Sanitizing Dispenser (Pedal operated), Automatic Hand Sanitizing Dispenser, Sanitising tunnel, UV Blaster etc. as a part of the Government of India's effort in its fight against the ongoing COVID-19 pandemic.
- ITI has teamed up with DRDO for development of Single Outlet Automatic Resuscitator-Portable Ventilators and UV disinfection system. ITI Limited has demonstrated Portable Ventilators - Single Outlet Automatic Resuscitator (SOAR).

VIII. Details of Achievements For The Last Three Years

(Value in Rs. Crore)

Sl. No	Product/ Project	Performance 2019-20 (Audited)	Performance 2020-21 (Audited)	Performance 2021-22 (upto 30.09.2021 Audited)
1	NFS cable laying	214.38	108.95	18.25
2	Corp Mktg & MSP	217.73	287.84	417.23
3	Defence AMC/ASCON(MoD) AMC	94.74	79.25	16.17
4	MLLN, MLLN AMC /SSTP	28.00	22.03	8.81
5	GSM-SZ / AMC	36.02	34.38	30.19
6	NGN AMC	5.15	4.03	2.04
7	OCB AMC Business	13.93	8.65	2.23
8	G-PON ONT/OLT/Titli ONT/I&C	1.42	1.28	1.22
9	Defence Business/MCEU/MHA IP Encryptor	2.50	86.12	7.07

DEPARTMENT OF TELECOMMUNICATIONS

10	Data Centre	17.59	17.98	9.55
11	Banking / Div. Prod. /cont. Mfg./Srinagar services/ TPA/SNVM/ SNDM/3D printing/ Smart Parcel delivery system/Turnkey projects/GSM Franchisee/ Railway turnkey project	14.81	17.52	7.61
12	SMPS & Repair	5.41	7.80	10.01
13	HDPE /OFC	26.00	35.67	1.70
14	SATCOM & PCM MUX, CDOT AN RAX.	0.00		0.67
15	Solar Panel Mfg./LED Street Lighting	2.39	12.28	12.25
16	GujNet (including O&M)	1056.68	114.58	14.55
17	MahaNet	619.05	1367.46	29.08
18	Wi-Fi Hotspot	2.64	0.43	0.04
19	Wi-Fi Access Point	0.00		
20	Smart energy meter	11.98		
21	Micro PC/ Comp Screening/ E-governance / Aadhar Business/Smart Card	17.70	16.18	6.94
22	Face Shield	0.00	3.21	0.01
23	CCMS/Online RPF Exam	15.33		
24	ASCON PH-IV	0.00	328.40	97.35
25	Airtel FTTH Rollout	0.00		4.29
26	BharatNet Andaman & Nicobar	0.00	23.86	0.44
27	Tanfinet			
	TOTAL	2403.45	2577.90	697.68

Note: The performance includes Taxes

IX. Financial Performance

Performance During the Years (Rs in Crores)

	Particulars	FY 2020-21	FY 2019-20	FY 2018-19
1.	Total Revenue & Other income	2523.55	2242.76	2004.84
2.	Expenditure	2512.35	2095.28	1912.30
3.	Net Profit/Loss	11.20	147.48	92.54

X. Events

● **ITI Limited Participates in 28th Convergence India Expo 2021**

ITI Limited participated in 28th Convergence India Expo from March 24 to 26, 2021 at Pragati Maidan, New Delhi. The theme of Convergence India Expo 'Digital India - Connecting the Unconnected' created a platform for players to promote 'Brand India', and extend the impact of 'Make in India' and 'Digital India' campaigns globally



The three-day event provided an opportunity for professionals, digital innovators, international businesses, telecom and broadcasting players as well as leaders from IT, Internet, IoT and Embedded Technology industries to interact and do business with each other. ITI stall was inaugurated by Dr. P.D. Vaghela, Chairman, Telecom Regulatory Authority of India (TRAI) where products and services like Smaash PC, BharatNet, Smart Cities, 3D Printer etc. were displayed.

● **Shri Devusinh Chauhan, Hon'ble Minister of State for Communications visits ITI Limited**

Shri Devusinh Chauhan, Hon'ble Minister of State for Communications, Govt visited ITI Limited on July 16, 2021. During his visit, Shri Chauhan inaugurated PLB-HDPE Duct Manufacturing Plant





Hon'ble Minister of State for Communications addressed the gathering. He also visited the state-of-the-art manufacturing facilities at SMT Line, R&D, Start-up Hub, 3D Printing and Data Center. Hon'ble Minister also inaugurated Diagnostic Center at ITI Hospital and visited ITI Corporate Office on July 16, 2021.

- **EMC Lab of ITI Bangalore Plant Receives Certificate of Accreditation from NABL**

With this accreditation, ITI can support manufacturers and product designers by detecting the slightest anomalies in the electromagnetic and electrical operations of their products and address frequent due diligence, compliance and market access challenges.

XI. Training

The telecommunications industry is continuing to change at a fast pace around the world. The industry began to look into data-optimization & new generation technologies. India is also a market where new technologies are scheduled to be employed vigorously. In the present scenario of fast changing technology and increasing competition, ITI determined to train its employees to remain updated of knowledge and skill, to offset technological obsolescence and gain competitive edge in their services.



In pursuit with the Company's vision on HRM-Training, the HRD initiatives were more oriented towards imparting Training to Executives/Non-Executives for knowledge enhancement; Skill Development in telecom and IT. Training Programmes and workshops were organized in New Technologies at the Corporate Level in the name of new technological intervention by name CHINTAN – The Techno Brains – on various technologies like AI, Radio Access Network (RAN) of 4G/5G and Block Chain Technology and Applications etc., through webinar. Trainings are provided on HR matters also by another HRD intervention by name MANAS – HR Maturity Forum at Corporate Level, pertaining to topics like Competency based HR Management, The Contract Labour (Regulation and Abolition) Act 1970, Green HRM, Workgroup Development and Knowledge Management Portal etc., through webinar. Apart from the above different training programs were organized on Enterprise Risk Management (ERM), GeM Buying Process & New feature, E-tendering process, Advanced Training on PCMM Level 3, Awareness training programme on "Right to Information (RTI)", Orientation programme for Newly Promoted Senior Management Officers (Gr.6 to 9), Awareness & Internal Auditors Training on ISO 45001:2018, QuadGen Wireless Solutions and Contract Management through various modes (online/offline/ webinars).

In short, in respect of HRM-training performance/achievements for the period from April 2021 to September 2021 are as follows:

Employee Training: In-house and External Nominations:

No. of Training Programmes	No. Trained			No. of Training Man-days Achieved			Total Expenditure (Rs.)
	Exe.	Non-Exe.	Total	Exe.	Non-Exe.	Total	
46	1345	65	1410	1347	53	1400	1,93,101

XII. Skill Development Training – HR-ED

As a part of 'Skill India' Flagship programme, ITI started imparting Skill Development and Capacity Building trainings at six training centers of ITI. All the centers are registered under PMKVY and also have associate membership with NSDC for different Job roles. Due to COVID-19 pandemic the skill development activities got hindered during the FY 2020-21 & FY 2021-22. The number of participants imparted capacity building/skill development training during the FY 2021-22 (April 2021 to September 2021):

Sl. No	Skill Development /Capacity Building	No. of participants
1	In-Plant/Internship Training (ITIL module)	196
2	Project Trainees – Training (ITIL module)	55
3	Diploma Technician Apprentices	8
4	Apprentices - ITI Trade (NAC)	5
5	Graduate Engineer Apprentices	5
	TOTAL	269

5.4 TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED (TCIL)

5.4.1 Introduction

Telecommunications Consultants India Ltd. (TCIL) is a Mini Ratna Category-I Schedule-'A' company, 100% owned by Govt. of India Undertaking providing consultancy, implementation services and turnkey project execution services in the field of Telecommunications, IT, Power, Civil & Architecture. Incepted in 1978, TCIL introduced new technologies in telecom software, switching and transmission systems, cellular services, rural telecommunications, optical fiber-based backbone transmission system, etc. TCIL is an ISO 9001: 2015, CMMI Level-3 certified profit making Indian MNC that has been undertaking various projects across diverse fields of telecommunications and information technology in over 85 countries across the globe.

TCIL's core business is creating connections through communication with a vision to excel in providing solutions in Information and Communication Technology, Power and Infrastructure Sectors globally by anticipating opportunities in technology. Under the PAN Africa Network Project, TCIL is providing Tele Education and Tele Medicine services to African nations connecting African universities and hospitals with Indian universities/institutes and super specialty hospitals. Additionally, TCIL offers services from concept to commissioning in setting up Smart cities, Homeland security and Integrated Security Projects. The ICT @Schools program is the largest Govt. funded digital literacy program bringing digital skills to as many as 2.5 million young students in semi urban and rural areas. School project in Uttarakhand is of prime importance as it is satellite-based and provides interactive modal of education simulating real-time scenario.

TCIL has been a pioneer in setting up projects using new technology & applications in rural markets and in remote areas with geographically difficult terrain such as Arunachal Pradesh, J&K and others, offering value added service through empanelment of Start-ups, MSEs and Business Associates. A feather in TCIL's cap is the construction of a first-of-its-kind REC World Headquarter Building at Gurugram, designed to GRIHA-5 star ratings and equipped with Access controlled Lighting Management system, 100% solid waste management and rainwater harvesting system for an approximate cost of INR 500 crores. A profit making PSU (Public Sector Undertaking), TCIL is constantly trying to improve the lives of people in India through its various operations across the globe.

5.4.2 Industrial/ Business Operations:

Under its recent lateral diversification and expansion strategy, TCIL has expanded its service portfolio to provide full scale project consultancy, execution and implementation in the following areas:

- Wired Line Projects - Optical Fiber Network, FTTH, OPGW, Submarine cable.
- Wireless Projects - TETRA, Mobile Technologies, In-Building solutions, QoS Audits, SatCom/VSAT Networks.
- Tele-education and Tele-Medicine Networks- e-VidyaBharati and e-AarogyaBharati.
- E-Governance Projects for Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Government (G2G).

- ICT@School Projects for several states.
- Security and Surveillance, Data Centre, Broadband Networks Disaster Management, IPV6, Statewide Area Network (SWAN), Managed Services e-Procurement and Video Conferencing.
- Cyber Parks, Buildings - Intelligent Buildings and Green Building System and Roads.
- Power Line Projects.
- Internet of Things (IoT), Services on Fiber, Artificial Intelligence (AI).
- Skill Development.
- Data Security and Cyber Security.
- Smart Cities and Experience Centers across India.

5.4.3 Performance Highlights:

TCIL achieved total revenue of Rs. 1765.81 Crores during FY 2020-21. The profit after tax was Rs. 52.77 Crores. The company has achieved provisional turnover of Rs. 687.91 Crores up to September 2021 for FY 2021-22. Order booking for FY 2021-22 is Rs. 460.04 Crores up to September 2021.

- **e -VBAB** - TCIL has been designated as the implementing agency for the e-VBAB project of Ministry of External Affairs (MEA) Govt. of India, providing Education & Healthcare Services to African Countries. Till date 19 countries have signed the agreement for service delivery under the e-VBAB project. TCIL has signed agreement with 6 Higher Education Institutes (HEIs) approved by UGC to provide Online programmes/ courses. The Tele-Education services are available on www.ilearn.gov.in which is an administrative portal for approving the scholarship applications of learners and monitoring of their academic progress. Till July 2021, three academic cycles have been started and a total 3570 students have been offered scholarships under this project. UGC has approved more HEIs for providing online programs and TCIL is in process of signing agreements with these HEIs for next academic cycle. The e-VBAB Network Project shall also provide for setting up a Learning Centre in each selected University in the participating African countries to facilitate learners to access e-contents and attend live lectures. The Learning Centre shall be equipped with computers, TV Monitor, high speed scanner, audio system, cameras, internet connection, furniture and any other items essential for providing Tele-Education services. The examinations may also be conducted in these Learning Centers for the learners having insufficient bandwidth to take exams from their home. Supply of Learning Center equipment to 14 African countries has been completed and Learning Center facility has been already established in Malawi and Sierra Leone. The e-VBAB Network Project shall also offer Tele-Medicine services namely Continuing Medical Education (TM-CME) & Tele-Consultations (TM-TC) in the African countries through selected Super Specialty Hospitals/Institutions from India. The web portal for offering tele-medicine services has been conceptualized and will be live very soon.



e-VBAB project of Ministry of External Affairs

- **ICT Virtual Classroom Projects** - TCIL is providing State of Art Smart and Virtual Classrooms to provide superior products to enhance the level of learning in Schools/Colleges/ Institutes under Ministry of Human Resource Development and SarvaShikshaAbhiyan for Govt. of Odisha, Andhra Pradesh and Telangana.

Major projects are mentioned below:

- Supply, Installation, Commissioning and Warranty support of Smart Classrooms in 99 JNVs located across India.
- Supply, Installation, Commissioning and Warranty support of Digital Classrooms in Kenjhour District, Odisha.
- Supply, Installation, Commissioning and Warranty support of Smart/Virtual Classrooms for Rama Devi Women's University, Bhubaneshwar, Odisha.
- Supply, Installation, Commissioning and Warranty support of Smart/Virtual Classrooms for Spl. Commissioner of Collegiate Education, Collegiate Education, Andhra Pradesh.
- **Telangana Fiber Grid Project (T-FIBER)** - The project is envisaged to provide infrastructure to support high-speed broadband connectivity and digital services in 10 Zones (33 Districts) of Telangana. The network would be capable of delivering 4-100 Mbps to households and on-demand 20-100 Mbps to institutions and enterprises. It is planned to have a 100G MPLS ring connecting zones, a 40G MPLS ring is planned at Mandal (Block) level & 10G MPLS ring at GP level. TCIL bagged Package-C through open bid process at Rs. 1492.52 Crores,

as Master System Integrator (MSI) to execute the work over 3 Zones (Adilabad, Karimnagar and Nizamabad) comprising of 10 districts (Adilabad, Komarambhem, Mancherial, Nirmal, Jagtial, Karimnagar, Peddapalle, Rajanna, Kamareddy and Nizamabad), 182 Mandals and 3,775 Gram Panchayats. The overall scope of the work includes – Route Survey, Design & Planning of Network Architecture, OFC laying work, finalization of BoQ, procurement & supply of all active and passive equipment on the basis of approved BoQ, establishment of T-NOC & Connectivity, installation, testing, commissioning, operations & maintenance for a period of 7 years from the date of 'Project Go-Live'. Fiber Cable (OFC) network from State HQ to Zone (at least 75% Underground), Zone to Mandal (at least 75% Underground), Mandal to Gram Panchayats (100% underground in linear/chain topology and rest portion for completion of ring shall be taken up on aerial) forming a ring architecture and further connectivity up to the households to be on a linear architecture.

Execution clearance was given for works in Non NOFN Mandals i.e. 131 Mandals consisting of 2,719 GPs. Despite Covid-19 challenges and Mission Bhagiratha duct related challenges, TCIL achieved considerable progress in the execution of work. Total value of work executed was Rs. 453.45 Crores upto Dec-2021 out of Phase-I awarded CAPEX of Rs. 717 Crores. Work is scheduled to be completed by 31-3-2022.

- VSAT** - TCIL has been awarded a Turnkey project by Bharat Broadband Network Limited (BBNL) for Supply, Installation, Testing, Commissioning, CMAC of Gateway Baseband equipment and VSAT equipment for satellite based communication network.. The project will provide backhaul connectivity to 5521 remote sites consisting of Gram Panchayats locations (4112) and DSPTs locations (1409) of MHA/MoD agencies spread across 24 states, under Bharat Net Project Phase-II including Operation of Gateways. Internet service is being provided through VSATs to Panchayat offices, Govt. schools, and health centers etc, which are located at very remote areas and to the Border Outposts of Armed Forces. Turnkey implementation of satellite based networks, VSAT Networks, Audio & Video Broadcasting networks based on latest technologies and its operation and Maintenance, up-gradation/re configuration of satellite networks as well. Prominent projects include the prestigious Pan-African e-network project, VSAT network for Nepal Telecom, SAARC e-network Tele-medicine & Tele-education project, O&M services for GULFSAT (Kuwait), ARABSAT, GULFSAT, INTELSAT and INMARSAT Satellite Earth Stations at Riyadh, Jeddah and other cities in Kingdom of Saudi Arabia (KSA). The order value is Rs 256.69 Crores. The scope covers 2 years warranty from the date of commissioning and 6 years of CAMC after completion of warranty. The satellite based network shall be established through two satellites namely GSAT-19 & GSAT-11 of ISRO, having Gateway Stations at Ahmadabad and Ranchi respectively. Recently, TCIL has been awarded and add-on order for procurement of Hub gateway equipment for two gateway stations, viz Delhi (GSAT-11) and Bangalore (GSAT-19) along with VSAT and solar equipment for 47 Gram Panchayats sites. The order value is Rs. 30.62 Crores, having similar scope of work as the existing order. Recently, BBNL has awarded add-on order for procurement of VSAT & Solar equipment for 653 Gram Panchayat sites. The order value is Rs. 32.5 Crores having same scope of work as per existing order.

- **BSNL CDR Project** - Currently the Operations Support System and Business Support System for fixed line Telecom and IP-based services of BSNL are being served by three projects namely:
 - a) CDR Project-I (South DC at Hyderabad and East DC at Kolkata)
 - b) CDR Project-II (North DC at Chandigarh and West DC at Pune)
 - c) NIB-III Project-3 (Main DC at Bangalore, DR at Pune, Branch DC's at Mumbai & Noida)

The objective of the new project called as (CDR Project-III) is to consolidate the functionalities of these 8 data centers and implement two state-of-the-art data centers at Hyderabad and Pune. All hardware and software are to be replaced with the new solution and a central platform is to be built to service 15 million customer bases, which includes various voice and IP-based internet services. The scope of the work includes Designing, Planning, Supply, Installation, Configuration, Customization, Integration, Testing (Validation & Acceptance Testing) and Commissioning of Hardware equipment & software modules, Migration, Training, O&M and AMC. The solution is based on Cloud concepts where Infrastructure & Platform are virtualized and custom-built as Private Cloud for BSNL's requirements. The project has been split into 3 Phases. The PO for Phase-I (more than Rs. 400 Crores) was raised to TCIL in Mar-2020. This project will replace the existing projects of NIB-II P3, CDR P-I & P-II by consolidating all applications and business flows into one converged system of OSS & BSS for all fixed line Telecom and IP-based services provided by BSNL. Though the complexity and challenges are enormous, but on successful implementation of this project, it will be iconic to both BSNL and TCIL for the next 7-10 years.

- **Country-wide Optical Fiber Network Project for Defence** - TCIL has executed "Network for Spectrum" Project of BSNL which was designed for the Exclusive Network of Defense Services in the states of Rajasthan, Uttarakhand and Uttar Pradesh worth Rs. 2000 Crores. The scope of work included the Survey, Design, Construction and Testing of exclusive optical NLD backbone & access routes network for Defense Services, followed by 3-Year warranty and 7-year AMC. The project involves supply of material and laying of more than 10000 kms of Optical Fiber Cable through Permanent Lubricated Ducts. More than 99% links have already been commissioned along with completion of warranty for part of the project. AMC of 7 years is in progress now.
- **GIS based OFC Network for Indian Navy** - BSNL has awarded the construction work of OFC Network for the exclusive use of the Indian Navy, Ministry of Defence (MoD) for a value of Rs. 555.82 Crores inclusive of all taxes on 22nd July 2015. The network uses state-of-the-art technology to ensure completely secured network to Indian Navy. Project Scope involves Supply of 96F (Ribbon)/48F+8F/ (Sensory Fiber) Intrusion Proof cable, 48F Armored Optic Fiber cable, 8F Mobile Field Cable, HDPE PLB, DWC, GI, RCC pipe & accessories, FDMS, Jetty Enclosures, TMFOC (Tactical Mobile Fiber Optic Cable) & accessories, ONIT, FTMS & FIPS. This project involves laying of optical fiber for entire access network distributed among four zones viz. Eastern, Western, Northern & Southern

Zones covering 33 nodes consisting of 42 stations in 19 States and 4 UTs. The essence of this network lies in the monitoring of 3000 km of optical fiber carrying highly sensitive data/traffic of Indian Navy. The works involves execution of underground network in all major station of Indian Navy including intra city works involving number of underground utilities. This ensures the network administration & performance to be continuous, smooth and seamless. Presently, approx. 2400 Km of OFC work is completed and 30 Stations have already been commissioned. Remaining stations are near completion. Training Lab is also being set up at Kochi for imparting training to Navy Officers.

- **IP CCTV for DTC Buses** – TCIL has been awarded a work order for Rs. 160.7 Crores for Design, Implementation and Management of IP CCTV and Automatic Vehicle Tracking System in DTC and Cluster Scheme Buses from Transport Department and Delhi Transport Corporation. The project envisages implementation of surveillance system through video surveillance and automatic vehicle tracking system in accordance with the highest standards available for monitoring the activities of the commuters using the DTC and Cluster buses and the crew members. The objective of the project is to ensure safety and security of the passengers, particularly of women passengers through IP based CCTV surveillance cameras in the buses of DTC and Cluster scheme.

The Project has the following major components in the scope:

- i. IP CCTV Surveillance system in side 5500 Buses. Inside all buses, three (3) IP CCTV Cameras, one (1) 7" Display, one (1) mNVR with housing & storage, ten (10) Panic Buttons, one (1) hooter, one (1) Strobe, two (2) Audio console.
- ii. MPLS Cloud Network to connect 5500 buses, 66 depots, 1 Viewing Centre, 1 Data Centre, 1 Command and Control Centre, 1 Disaster recovery.
- iii. Full-fledged Command and Control Centre at ISBT Kashmere Gate.
- iv. Viewing Centre at Transport Department Head quarter,

Disaster recovery at Sarai Kale Khan ISBT.

- **DARPAN (Postal Project)** - TCIL is executing a Rural ICT-Hardware (RH) project for Department of Posts, Ministry of Communications, for Supply, Installation & Maintenance Services of Hardware, Peripheral Devices, Operating System and Connectivity. The project is being executed in consortium with M/s Minosha India Limited (erstwhile RICOH India Limited) on a lease model of Build Own & Transfer (BOT) basis. The objective of the Rural ICT project is to provide low power technology solution (ICT Devices) to each Branch Postmaster (BPM), which will enable each of approximately 130,000 Extra Departmental Post Offices (EDO's) to improve the quality of service, add value to the service and achieve "financial inclusion" of un-banked rural population while taking advantage of the opportunity to increase revenue traffic. The total value of the project is Rs. 1361.73 Crores. The tripartite agreement between TCIL, RICOH and Department of Posts was signed on 24th November 2014. The start date of project was fixed as 24th August 2016. The project is operational and as on date the contract's main deliverable i.e. supply of RICT hardware infrastructure

at 1,29,423 Rural Branch Post Offices and solar solution in 100,676 locations has been completed. Other necessary infrastructure includes deployment of 114 Pan India Service Centers, providing network connectivity at 1.29 Lakhs Post Offices and Helpdesk Management. A dedicated project and operations management team of around 200+ resources is deployed across India.

- **APSFL Project** - Govt. of Andhra Pradesh set-up a State Govt. owned enterprise APSFL (Andhra Pradesh State Fibernet Ltd.) for implementation of Bharat Net Phase-II in 13 districts of AP. APSFL divided the OFC backbone work into 3-packages viz., Package-A, B, C and invited open bids in 2018. TCIL bagged Package-A over 5-districts at total cost of Rs. 477.30 Crores. Master Service Agreement was signed on 8th Jan 2019. The work involves establishing Optical Fibre Network Infrastructure using 24F All Dielectric Self Support cable in the 5 – Districts of Guntur, Krishna, Kurnool, Prakasam, and West Godavari Districts.

Current Status of APSFL Project:

- FAMS supplied and installed at the data Centre.
 - OFC & accessories has been laid approximately 4044 Kms over 117 Rings, covering 880 GPs.
 - Value of work executed till date is Rs. 68.31 Crores approx.
 - Govt. of AP advised to halt the work in Mar-2020 due to Covid-19 outbreak.
 - Govt. of AP vide letter dated 05.11.2021 revive the project
 - As per latest advice, 30% GPs should be lit up by 31.01.2022 and work is in progress.
- **National Internet Backbone–II Project–3 (NIB-II, P3) of Bharat Sanchar Nigam Limited-** TCIL has successfully completed the turnkey implementation of various network components required for the NIB-II Messaging and Storage Service Platform, OSS and Billing, Security System and EMS in Data Centers in four cities viz. Bangalore (Main), Noida, Mumbai and Pune (Disaster recovery). Total 10M subscriber capacity achieved in four stages. Year-1 order implementation for 1.8M, Year-2 order expansion up to 3.2M, 50% Add-on order expansion up to 5M and finally 5M to 10M expansion order up to 10M subscriber base has been done. The AMC services are currently ongoing and TCIL shall impart AMC services till 30.09.2022.
 - **Telecom Consultancy** - The Telecom Consultancy Projects undertaken by TCIL during the year include:
 1. Works related to Chennai – ANI (CANI) submarine cable project (Client – USOF, DoT) amounting to Rs. 17.96 Crores plus GST: TCIL was technical consultant for Chennai - Andaman submarine cable project. TCIL was IMA (Independent Monitoring Agency) appointed by USOF. The project was inaugurated by Hon'ble PM on 10th Aug 2020.
 2. Preparation of DPR for submarine OFC connectivity of Lakshadweep Islands amounting to

Rs. 2.65 Crores: TCIL has prepared the DPR (based on Desktop Study) which involves the submarine optical fiber connectivity of 11 Islands of Lakshadweep to mainland at Kochi. The project has been approved.

3. Third Part Audit for BharatNet II project of Gujarat State (Client - GFGNL) amounting to Rs. 40 Crores plus GST: TCIL has been carrying out the audit related activities for this project. A 200 plus team of engineers is deployed in the field to cover 22 districts of Gujarat. The project is in final stages of completion. To date approx. 6200 Gram Panchayats have been audited by TCIL.

- **HP Excise E-Governance Project** - TCIL is implementing an e-governance system for excise functions of Himachal Pradesh Department of State Taxes & Excise, Government of Himachal Pradesh. The project involves designing, development, supply, installation, commissioning, implementation and maintenance of complete track-n-trace application along with automation of excise functions of Himachal Pradesh Excise Department.
- **UKSCB Project** - TCIL has signed an agreement for “Supply, Implementation, Training and Commissioning of Core Banking Solution for State Co-operative Bank and District Co-operative Banks” on dated 21.01.2021 with Uttarakhand State Cooperative Bank in Uttarakhand. The scope of work is setting up of Data Center and providing the Core Banking Solution (CBS) services to Uttarakhand State Co-operative bank, District co-operative Bank and their various branches in Uttarakhand for five years. The total cost is Rs. 25 Crores approximately.
- **Wireless Infrastructure** - TCIL's Wireless Infrastructure division has executed the following projects as under:

Recently a MoU dated 04th Feb 2021 has been signed between TCIL and BRO (Border Roads Organization) for the Prestigious Project- Installation and Provisioning of IBS and outdoor poles for multiple mobile operator coverage on neutral infrastructure in and around ATAL Tunnel.

- **E-Governance** - Online Examination: A project is awarded by Central Institute of Plastic Engineering and Technology (CIPET) for mobilisation of candidates, registration, issue of admit cards, management of exam centres at various places in all states across India, arrange online examination, evaluation and preparation of merit list etc. for the session 2020-21.
- **Civil Infrastructure Projects** - Civil Division is performing various construction activities as consultant for Comprehensive Architectural Design services, Project Management Consultancy, EPC basis & Third Party Quality Inspection & Audit services for construction of Buildings, Roads and other various civil infrastructure works with expertise in Intelligent Buildings and Green Buildings.

Civil division is presently operating in more than twenty States of India delivering the complete infrastructure services. Meticulous planning, high quality standards and unmatched execution of the projects by Civil Division has enabled TCIL to book orders of more than Rs. 1447.02

Crores in the financial year 2020-21 from various government departments including work on Nomination Basis and through National Competitive Bidding. Civil Division is providing its Project Management Services, EPC Services & Third Party Quality Control services for various infrastructure sectors.

- **Kuwait** - During the year 2020-21, due to COVID Pandemic Kuwait was under complete lockdown for 3 months which impacted business. TCIL helped client KIPIC in establishing the telecommunication network inside the Quarantine Center build in Mishrief area, Kuwait. Due to promptness, TCIL did not lose any human life and received appreciation by client.

As on 01.04.21 orders in hand for the current year is Rs. 143.234 Crores from prestigious clients like MOC, METCO, VIVA, Quality Net, KIPIC, KNPC etc.

TCIL Kuwait has achieved a Turnover of Rs. 30.04 Crores with a profit of Rs. 4.23 Crores upto September-2021 during the FY 2021-2022.

- **Kingdom of Saudi Arabia (K.S.A)** - Under National Transformation Plan 2020 of Kingdom of Saudi Arabia, TCIL has successfully completed prestigious Saudi Government National Broad Band (NBB) project with all the 3 companies viz. Integrated Dawiyat (100% owned subsidiary of Saudi Electricity Company (SEC)), Saudi Telecom Company (STC) and Integrated Telecom Company (ITC). Under this project, TCIL has provided Civil & Fiber infrastructure i.e. Fiberto-the-Home (FTTH) Connectivity for every household in the country. TCIL has executed works to the tune of Rs. 800 Crores.

TCIL has successfully completed the work of Relocation of Telecom Services for all the 3 Metro Consortiums namely ANM, FAST and BACS, of major Telecom Operators namely STC, MOBILY and ITC. TCIL has earned a turnover of Rs. 65 Crores from these Relocation jobs since inception.

TCIL KSA has achieved a turnover of Rs. 137.67 Crores with a profit of Rs. 15.96 Crores upto September-2021 during the FY 2021-22.

- **Oman** - TCIL continues its presence in Sultanate of Oman since 1987. During the financial year 2020-21, TCIL carried out FTTH Network Construction Work for prestigious client, M/s Oman Broadband (OBB).

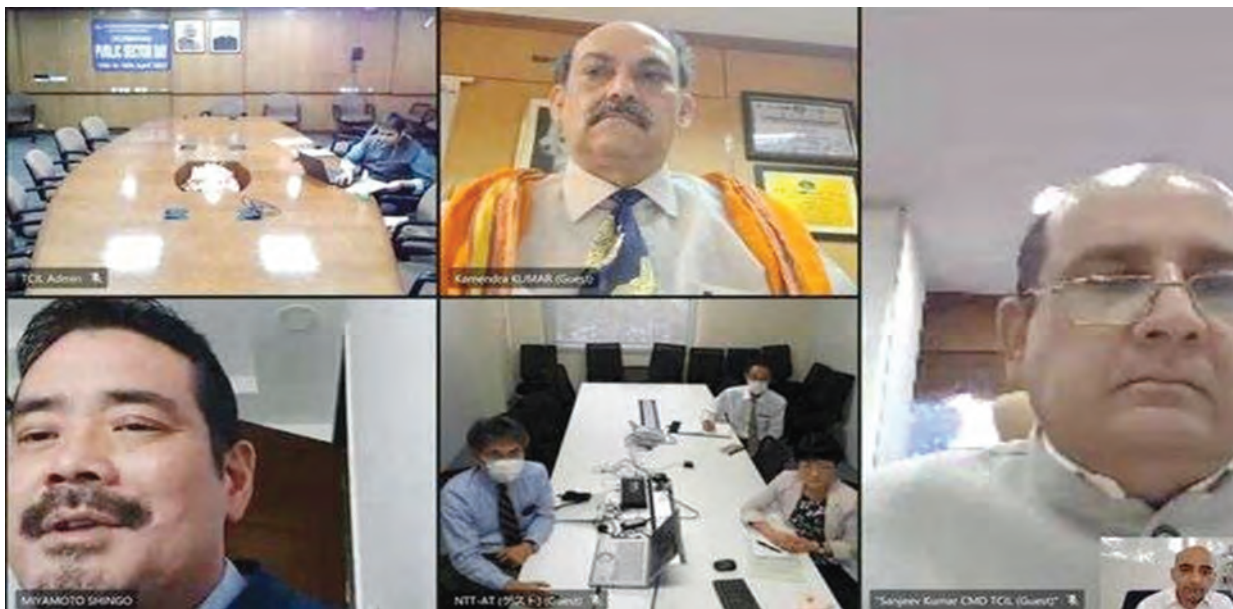
The Major types of works done for M/s Oman Broadband under Frame Agreement T-003-2018:

- Construction of Duct System for laying OFC for Oman Broadband.
- Supply & Installation of Duct System Chambers/Manhole/Handholes.
- Construction of Horizontal Directional Drilling (HDD) for major road crossings for Duct Systems.

- Installation of Street FDH (Fiber Distribution Hub) for FTTH Network.
- Pulling of Optical Fiber Cables in existing & new laid Duct systems.
- Supply & fixing of Splice Closure after splicing fibers in the NAPs/Branch joints (BJs).
- Splicing/Termination/Testing of Fibers and Handing over of FTTH Network.
- Laying of Pipes to individual House for House Connection for said created FTTH Network.
- Maintenance of Networks like rectifying damages in Duct Route & Duct Rout Chambers, Improve losses in Fiber Cables, Branching/Diversion of Fiber Cables etc.

5.4.4 Events:

- TCIL signed MoU with Japan's NTT Advanced Technologies through virtual platform on 7th April 2021 in the presence of Excellency Mr. S. Miaymoto Minister Economic, Embassy of Japan to collaborate in the business areas of 5G, cyber-security, artificial intelligence (AI), Internet of Things (IoT) and submarine cable systems.



MoU with Japan's NTT Advanced Technologies

- TCIL presented a dividend cheque of Rs. 211.10 Million to Shri K. Rajaraman, Secretary, DoT in 2020-21, TCIL achieved standalone revenue and profit after tax of Rs.17492.90 Million and Rs.527.70 Million respectively.



c) Sh. Devusinh Chauhan, Hon'ble Minister of State for Communication, Government of India visited TCIL on 15 July 2021



5.5 BHARAT BROADBAND NETWORK LIMITED (BBNL)

5.5.1 Bharat Broadband Network Limited was incorporated as a Special Purpose Vehicle (SPV) of BharatNet (earlier known as National Optical Fibre Network) in 2012 and an Agreement was signed between Universal Service Obligation Fund (USOF) and BBNL for 5 years. Considering the scope of work in BharatNet, BBNL will be required for various activities pertaining to PPP model under BharatNet as also to oversee the completion of work in State-led model, etc. Accordingly, the funding to BBNL (including the establishment and administrative cost of BBNL) is now proposed to be extended upto 31.03.2025.

5.5.2 BharatNet project is being implemented in a phased manner to create network to connect all the Gram Panchayats (GPs) with broadband in the country. This infrastructure is leased to TSPs/ ISPs for provision of internet connectivity in GPs/rural areas including villages/ Government institutions, schools and private areas.

(ii) **BharatNet Phase- I:** BharatNet Phase-I has been implemented by tapping existing Fibre of Bharat Sanchar Nigam Limited (BSNL). The target of completing 1,00,000 GPs under Phase-I of BharatNet was achieved in December 2017. Subsequently, the work front of Phase-I was revised and presently about 1.20 lakh GPs are under implementation.

(iii) **BharatNet Phase- II:** BharatNet Phase-II in Andhra Pradesh, Maharashtra, Gujarat, Telangana, Chhattisgarh, Jharkhand, Odisha, Tamil Nadu and Uttarakhand assigned to State Led Model, Madhya Pradesh, UPE, UPW, Sikkim and J&K assigned to BSNL. BharatNet Phase-II in Bihar and Punjab is implemented through BBNL led Private Model.

BharatNet in about 5575 GPs of remote and hilly areas have been planned on satellite media. Out of this, implementation in 1408 GPs is being done by BSNL and implementation in 3745 GPs is being done by BBNL. The plan for implementation of 422 GPs on satellite of J&K is under finalization.

(iv) **PPP model:** The scope of BharatNet has now been extended upto all inhabited villages beyond GPs. On 30.06.2021, Government approved a revised strategy for implementation of BharatNet through Public-Private Partnership (PPP) model in 16 States (Kerala, Karnataka, Rajasthan, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, West Bengal, Assam, Meghalaya, Manipur, Mizoram, Tripura, Nagaland and Arunachal Pradesh) of the country covering about 3.61 lakh villages (including 1.37 lakh GPs). The govt. has also accorded in-principle approval for extending broadband to all inhabited villages of the remaining States and Union Territories.

5.5.3 Share Holding Pattern: The authorised share capital of BBNL is 100,00,00,000 equity share of Rs. 10/- each i.e. total authorised capital is Rs. 1000,00,00,000.00. The issued, subscribed and fully paid share capital is 6,00,00,003 equity shares of Rs. 10/- each. Out of total issued subscribed and fully paid share capital, the Government of India holds 6,00,00,000 equity share of Rs. 10/- each valued Rs. 60,00,00,000.00. Apart from that Bharat Sanchar Nigam Limited, Power Grid Corporation of India Limited (PGCIL) and RailTel Corporation of India Limited hold one equity share each of Rs. 10/-.

5.5.4 Financial Performance: The Financial performance during previous years has been as follows:

Financials and Turnover **(In Rupees)**

Year	Turn Over		Total Expense	Profit / (Loss) Before Tax	Tax Expense	Profit / (Loss) after tax
	Income from Operation	Other Income				
2018-19	57,22,103	5,83,28,58,738	5,79,31,32,543	4,54,48,298	1,18,16,560	3,36,31,738
2019-20	22,14,47,931	8,96,96,81,577	9,15,90,03,353	3,21,26,155	(2,52,352)	3,23,78,507
2020-21	23,45,71,519	9,10,17,50,155	9,31,45,77,857	2,17,43,817	72,54,944	1,46,42,356

Note: As per audited annual financial statements.

(viii) Physical performance of BBNL:

S. No.	State	No. of GPs planned				No. of GPs service ready			OFC Laid (Km)		
		PH-I	PH-II	PPP	Total	PH-I	PH-II	Total	PH-I	PH-II	Total
1	Assam	1506	5	1153	2664	1501	0	1501	4831		4831
2	Bihar	5720	2685	0	8405	5653	2646	8299	16457	10862	27319
3	Chhattisgarh	4048	7634	0	11682	4048	4496	8544	13203	22707	35910
4	Haryana	6082	0	177	6259	6082	0	6082	11901		11901
5	J&K	413	3868	0	4281	408	647	1055	856		856
6	Karnataka	6084	0	2	6086	6083	0	6083	14071		14071
7	Kerala	977	1	0	978	977	1	978	825		825
8	MP	12544	5321	4976	22841	12533	4186	16719	39577	27413	66990
9	Maharashtra	15171	13066	0	28237	15159	6391	21550	34069	46078	80147
10	Punjab	7948	4717	672	13337	7951	4717	12668	12592	11871	24463
11	Rajasthan	8747	30	2575	11352	8739	30	8769	30183		30183
12	UP(E)	17726	16823	8568	43117	17635	6330	23965	36612	33799	70411
13	UP(W)	10305	2145	3798	16248	10221	18	10239	21933	3710	25643
14	Uttarakhand	1831	6131	0	7962	1512	121	1633	3674		3674
15	West Bengal	2676	3	669	3348	2298	0	2298	9303		9303
16	Sikkim	49	136	0	185	22	1	23	347	548	895
17	A&N	66	4	0	70	20	4	24	110		110
18	Chandigarh	12	0	0	12	12	0	12	19		19
19	Arunachal	79	1079	638	1796	79	677	756	1519		1519

S. No.	State	PH-I	PH-II	PPP	Total	PH-I	PH-II	Total	PH-I	PH-II	Total
20	Nagaland	127	120	747	994	116	114	230	2000		2000
21	Manipur	320	1219	1246	2785	315	1121	1436	634		634
22	Mizoram	41	501	221	763	41	411	452	689		689
23	Tripura	584	142	295	1021	570	142	712	1687		1687
24	Meghalaya	122	596	1073	1791	122	503	625	1069		1069
25	Gujarat	6595	7692	0	14287	6392	7571	13963	18735	35091	53826
26	D & D	16	2	0	18	16	0	16	26		26
27	D & NH	20	0	0	20	20	0	20	68		68
28	Puducherry	98	10	0	108	98	0	98	93		93
29	Tamil Nadu	0	12520	0	12520	0	0	0	0		0
30	AP	1692	11734	0	13426	1679	27	1706	5375	14671	20046
31	Telangana	1946	10823	0	12769	1946	4067	6013	4772	14263	19035
32	Odisha	3810	2989	0	6799	3809	2537	6346	12501	19448	31949
33	Jharkhand	2707	1688	0	4395	2583	1538	4121	8199	7777	15976
34	HP	252	159	2815	3226	251	155	406	781		781
35	Lakshadweep	0	10	0	10	0	9	9	0		0
36	Ladakh	0	193	0	193		188	188	0		0
37	Goa	0	191	0	191		0	0	0		0
	Total	120314	114237	29625	264176	118891	48648	167539	308711	248238	556949

5.6 CENTRE FOR DEVELOPMENT OF TELEMATICS (C-DOT)

5.6.1 Overview of C-DOT activities

C-DOT is a telecom organization engaged in the research and development of state-of-the-art Telecom R&D activities as well as in the field implementation of its developed technologies. C-DOT is appraised at CMMI (Capability Maturity Model Integration Maturity) Level 5 for its process practices for the 'Development Projects', and has been sustaining this status since 2014.

5.6.2 Key Project Achievements

- 4G Solution comprising of C-DOT's 4G Core and Tejas RAN (Radio Access Network) was successfully demonstrated to Secretary, DoT and senior DoT and BSNL officials on October 9, 2021. PoC (Proof of Concept) trials for BSNL, EoI (Expression of Interest) for 4G is in progress at the two PoC sites of Chandigarh and Ambala.
- During FY 2021-22, the services of "COVID-19 Savdhan" system based on CAP (Common Alerting Protocol) was used by 12 States & Union Territory authorities to

send 23.11 crore COVID-19 pandemic SMSs to the citizens of India in English and 7 regional languages.

- During Cyclones Tauktae, Yaas and Gulab in Tamil Nadu floods, concerned state disaster authorities sent 7.77 Crores SMSs in vernacular languages using C-DOT CAP platform. Also, 60 lakh voice messages were disseminated to the targeted population of West Bengal and Odisha during cyclone Yaas.
- C-DOTs Covid-19 Quarantine Alert System (CQAS) has been designed for detecting the quarantine Geo-fence breaches. CQAS is also being used as Oxygen Digital Tracking System (ODTS) to track oxygen carrying vehicles since May 2021. It works based on driver's mobile no. or M2M (Machine to Machine) SIM used in the vehicle.
- Trusted Telecom Portal (TTP): C-DOT's software solution for implementation of National Security Directive on Telecom Sector (NSDTS) was successfully launched and made operational on 15th of June 2021.
- TSOC (Telecom Security Operation Centre) - Additional 24 Internet Gateways completed this year using in-house developed 200 Gbps IPFIX (IP Flow Information Export) probe. C-DOT successfully developed and deployed 400G IPFIX probe at one ISP site. Dashboard for organizational level monitoring was also made available.
- In CEIR (Central Equipment Identity Register), Stolen Device Reporting System (SDRS) launched in Maharashtra/Goa, Mumbai and Delhi circles. Indian Counterfeited Device Restriction (ICDR) system was launched on pan India basis for checking validity of imported mobile devices.
- C-DOT's Quantum Key Distribution (QKD) system along with C-DOT's PQC (Post Quantum Cryptography) Encryptor and Router was successfully tested and demonstrated in the Army Network (approximate fiber length of 50 Km) in December 2021.
- Wi-Fi Access points deployed in Indian Navy & CSCs. Pan-Navy deployment activity started to cover all Naval ships under all Naval Commands.
- Digital Connectivity in some village clusters of Akola in Maharashtra was extended using C-DOT's Wi-Fi Technology in "Point-to-Point (P2P) link" and distributed through Public Wi-Fi Networks for proliferation of broadband.
- PM-WANI Central Registry integrated with PRAYAAS Portal of government of India which has details of all PM schemes. PDO (Public Data Office) Portal developed for PDO's to receive enquiries regarding the PM-WANI scheme. Dashboard enhanced to provide usage data of the PM-WANI scheme.
- PM-WANI Service Delivery Platform - C-DOT enabled 12 PDOAs (Public Data Office Aggregator) and APP providers on C-DOT developed PDOA stack and PM-WANI APP. Other PDOAs and APP Providers are also in the process to start services using C-DOT Solution.

- SAMVAD, a secured Chat and Call solution was enhanced with several new security features, hosted and offered to many Government organizations like DoT, Prasar Bharati, DRDO, MHA, NSCS, CSIR, SPG, Income Tax Department on trial basis.
- Integration of SDCN (Secure and Dedicated Communication Network) core with DRDO completed in Oct, 2021 including configuration of networking equipment, development and deployment of Enhanced Element Management System (EMS) and upgradation of Soft switch at DR (Disaster Recovery) site in SDCN Network
- MTCTE (Mandatory Testing and Certification of Telecom Equipment) Project was successfully rolled out for third and fourth phase for certification of products by OEMs.
- TWDM-PON: Technology Approval Certificate of XGS-PON (10-Gbps Symmetrical Passive Optical Network) received from TEC.

5.6.3 Progress in major technology programs:

a) Next Generation Mobile technologies

- **5G-CORE** - 5G Non-Stand Alone (NSA) Core development is in progress. Interactions are ongoing with partners to upgrade 4G eNodeB to make it compatible with 5G NSA. Development of 5G NSA Core will be completed by August 2022. For 5G Data Plane, Accelerated data plane functions and Accelerated virtual firewall solution are deployed in BSNL PoC setup. Experimental Standalone Core is setup in the Lab for study and evaluation.
- **5G-RAN (Radio Access Network)** – Study of 3GPP standards for 5G gNodeB development completed. System Requirement Specifications and Software Requirement Specifications finalized. Technical visits/Interactions held with IIT Madras and IIT Bombay regarding use of 5G testbed project components for building commercial grade 5G products. 5G core software, developed under 5G testbed project, received from IIT M which is being tested.
- **4G-RAN** - During the year 2021-22, till December, in 20W RRH Band-3, Band-40, Band-41 - 3-sector integration validation and testing completed. Over the Air testing of 20W Band 3 system done in C-DOT Campus and One round of testing of both FDD (B3) and TDD (B40) done in TCS Labs. In 40W RRH Band-1, Band-3, Band-41 Development, Design of B1, B3 and B41 40W PA modules completed. In 40W RRH Band-28 Development, Form factor and mechanical-thermal concept ready. Efforts are in progress to complete testing to release an industrial grade 4G RAN. C-DOT has signed an MOU with a system integrator for integrating CDOT 4G system with MCx (Mission Critical Applications) solutions for launching LTE for Railways (LTE-R).

b) Security related projects

- **CMS (Centralized Monitoring System) for lawful interception and monitoring -**
During the year, LEMF (Law Enforcement Monitoring Function) system has additionally been commissioned and operational with Maharashtra police wherein it is supported with 48 Remote sites and 225 Users connected to the system. Kerala Police and CBDT (Central Board of Direct Taxation)-Chennai have been connected with additional Remote locations.
- **CoE (Centre of Excellence) for Lawful Interception –**
- **C-DOT Video Conferencing Solution -** The solution is enhanced with important features like session streaming on YouTube, multiple webcams, repositioning webcams, network connectivity icon, display presenter video in full screen mode, Interactive Connectivity Establishment (ICE) Support, overload protection, screen sharing loop issue resolution, bandwidth saving features, shorter recording processing time. Solution is being used by various Government departments / organizations including IndiaPost, Railways, Prasar Bharti, DoT, NSCS, TSDSI and IITs.
- **Face recognition -** Pilot of Face Recognition conducted with one strategic agency. Developed Mask detection solution prototype for detecting protective gear for workers at site. Developed prototype of object detection from tower on request of a strategic agency and detecting & classifying objects from normal height. Algorithm development for sentiment, emotion, hate speech completed and integrated in social media analytics tool.
- **Quantum Safe Cryptography (QSC) –** Development of 80Mbps Compact Encryptor Module (CEM) completed. STQC commercial security grade certification is ongoing with all required security enhancements incorporated. MoU signed with the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad for examining the security use case in banking sector.
- **Quantum Key Distribution (QKD) -** Design & development of the point to point QKD system completed. Detailed system testing and optimization is in progress. C-DOT's QKD (along with C-DOT's CEM and Router) successfully tested and demonstrated in the Army Network (approximate fiber length of 50 Km) in Dec'21. Commercial order for setting up of QKD Prototype has been received from an academic institute. Interactions are ongoing with DRDO Lab and C-DAC for supplying C-DOT's QKD solution.
- **Secure and Dedicated Communication Network (SDCN) –** Integration of SDCN core with DRDO completed in October'21 including configuration of networking equipment, development and deployment of Enhanced element Management System (EMS) and upgradation of Soft switch at DR site in SDCN Network

- **Internet Lawful Interception Monitoring System**– C-DOT's solution for ISP Monitoring has been implemented at 15 new locations and existing 12 locations have been upgraded as on December'21.

c) Carrier networks transport technologies

- **Packet optical transport platform (POTP)** –Architecture Design of ~10T POTP system completed. Development of 4.8 Tbps POTP system is in progress

d) Next generation Switching and routing systems

- **Next generation High Speed Routing System (HSRS)** – C-DOT has completed the development, product integration and testing of High Speed Router/Data Center Switch. SDN (Software Defined Networking)/NFV (Network Function Virtualization) Software development and testing completed on reference system. Development of EMS (Element Management System) for HSRS Nodes completed.
- **LAN, MAN Enterprise and Data Centre Segment** –Validation testing of Medium capacity ToR (Top of Rack) switches completed. Integration testing of High Capacity ToR and High Capacity Spine Switches, design of 48-port Layer 2 switch has been completed. High Capacity ToR Switch Deployed in BSNL 4G Trial.
- **Switches and Router Support** - C-DOT has completed the development, product integration and testing of Branch Router. C-DOT also completed the design of indigenous server and 100 GB NIC card, Telco Data Center virtualized server (version1), using 3rd generation server processors. Accelerated virtual firewall and data plane functions solution are deployed in the BSNL PoC setup.

e) Satellite based technology

- **Satellite Hub Baseband system** – Field support continued to the customer for Carrier grade hub baseband system supplied to DEAL (Defense Electronics Applications Laboratory).
- **DVB-S2 (Digital Video Broadcasting - Satellite - Second Generation) Hub Baseband System** Development of Algorithms for configurable multiple Modulation schemes and Channel Coders has been completed.

f) Power efficient and Green telecom technologies

- **Development of 10KW power plant** – System Architecture has been finalized so as to support both Solar as well as AC main inputs. Such green and hybrid products would help control the greenhouse gas emissions from telecom network. Further Design and Assembly of AC based SMPS module is completed and prototype testing is in progress.

g) Telecom Service Applications

- **M2M Communication** - Design, development, testing and deployment of Service Capability Exposure Function (SCEF) completed for '4G Core Network Node for IoT' for demonstrating Non IP Data delivery as part of POC in BSNL Chandigarh.
- **PM-WANI Service Delivery Platform** – C-DOT Developed PM-WANI Compliant PDOA and APP software has been commissioned for 12 nos. of PDOAs and App Providers. This has enabled the PDOA and APP Providers to provide services under the PM-WANI scheme.
- **PM-WANI Central Registry (CR)** – CR has been integrated with PRAYAAS Portal of government which has details of all PM schemes. PDO Portal developed for PDO's to post enquiries with respect to the PM-WANI scheme. Dashboard enhanced to provide usage data of the PM-WANI scheme. Portal is translated into multiple Indian Languages.
- **Wi-Fi technology (BBWT)** – Design & development completed for Wi-Fi6 indoor and outdoor access points. WiFi5 indoor/outdoor access points developed for PM-WANI segment.

h) DOT projects

- **TSOC (Telecom Security Operation Centre)** - Additional 24 Gateways completed this year using in-house developed 200 Gbps IPFIX (IP Flow Information Export) probe. Development, testing and pilot deployment of 400 Gbps capacity IPFIX probe is completed successfully. Development of global, country level and organization level monitoring solution completed. Development of NMS and EMS for health monitoring of IPFIX probes is completed.
- **CEIR (Central Equipment Identity Register)** – Stolen Device Reporting System (SDRS) launched in Maharashtra/Goa, Mumbai and Delhi circles, Indian Counterfeited Device Restriction (ICDR) system was launched on Pan India basis for checking validity of imported mobile devices.

i) Major Field implementations, roll-outs, customizations

- **National Disaster Management Authority (NDMA) CAP EWS** - MoU for implementation of location based alert dissemination system 'SACHET' based on ITU-CAP was signed between C-DOT and NDMA on 23rd August 2021 for implementation on pan India basis. Secretary (DoT), inaugurated the CAP EWS lab at C-DOT on 3rd September, 2021.

- **MTCTE (Mandatory Testing and Certification of Telecom Equipment) Project:** The third and fourth phase of MTCTE portal was successfully rolled out for certification of products by OEMs.
- **Trusted Telecom Portal (TTP):** C-DOT's software solution for implementation of National Security Directive on Telecom Sector (NSDTS) was successfully launched and made operational on 15th June 2021. This will be a major milestone in ensuring security and integrity of the Indian Telecom backbone by assessment and verification of sources (company as well as product) of equipment's manufacturers/ device manufacturers/ system integrators.
- **NMS (Network Management System):** Mobile App developed by C-DOT has been successfully deployed in BharatNet. Major enhancements on TT (Trouble Ticket) and SLA (Service Level Agreement) modules for BharatNet NMS have been implemented and made operational. Unified Network Management System (UNMS) for monitoring "State Led, Satellite & BharatNet Phase I and II projects" has been deployed. Business Exchange Gateway developed for integrating non-CDOT NMS platforms. This has also been integrated with CSC for village coverage monitoring data access has been integrated for 24 states.

j) IPR Asset status

Intellectual Property Asset	Number	Related Project / Product	Subject Invention
Patents Granted	3	NOFN NMS	Trouble Ticket Generation And Management System (India)
		Generic/Optical Networks	Central Office Side Redundancy Scheme For Fiber To-The-Home Passive Optical Networks (India)
		Ggeo-Intelligence	GIS Based Centralized Fiber Fault Localization System (UK, Canada)
Patents Filed	4	Interoperable STB	Method And System For Confidential Data Based Broadcast Content Transmission In A One Way Broadcast Network (India)
		GPON / OTSC Card	A Learning-Based Method And System For Configuring An Optical Time-Domain Reflectometer In A Gigabit Passive Optical Networks (USA)
		Integrated CAP Alert system	System And Method For Geo-Targeted Automated Emergency Alerting Through Analog Radio Broadcast (PCT)

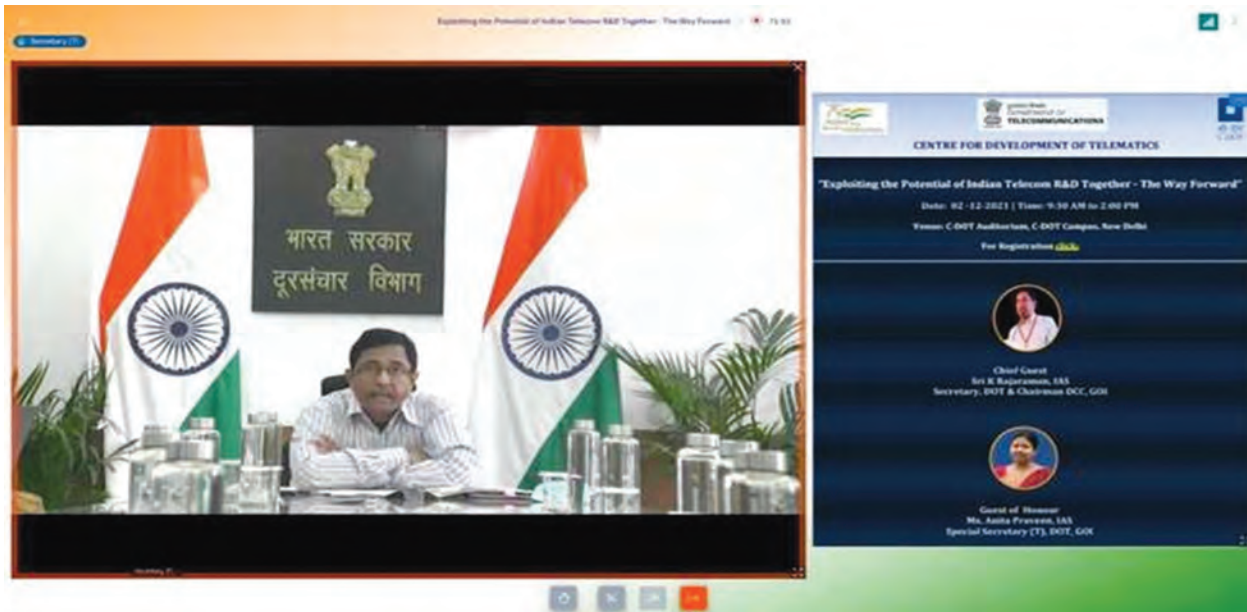
		C-DOT Converged Service Delivery Platform	A Secure Mechanism For Linear Content Streaming (India)
Copyright Granted	3	NMS Trails And Enhancements / NOFN NMS	Location Management System
		DVB -S2 Hub Baseband System	High Throughput DVB-S2 Modulator Baseband System
		4G	Long-Term Evolution-Network Management System (LTE-NMS)
Designs Filed	1	Wi-Fi	XAP WiFi Plastic Enclosure
Trademark Granted	2	Wi-Fi	Massive WiFi
Papers presented and published	2	Wi-Fi	Bamboo WiFi Fast Band Power Measurement Technique In Wifi System Using Spectrum Analyzer. The International Journal of Applied Power Engineering (IJAPE).
		CAP Compliant Integrated Early Warning Platform	Categorizing Disaster Tweets Into Actionable Classes For Disaster Managers: An Empirical Analysis On Cyclone Data. International Conference On Electrical, Computer, Communications & Mechatronics Engg. (ICECCME 2021), Mauritius, 07-08 october 2021

(iv) Business Promotion Activities during FY 2021-22 (April 2021 – December 2021)

a) Events and Exhibitions

❖ Workshop on “Exploiting the Potential of Indian Telecom R&D Together - The Way Forward” on 2nd December 2021

C-DOT conducted a workshop centered on the theme, “Exploiting the Potential of Indian Telecom R&D Together - The Way Forward” with the awardees of the Production Linked Incentive (PLI) and Digital Communication Innovation Square (DCIS) schemes on 02, Dec 2021. The workshop focused on exploiting the complementary strengths & C-DOT’s R&D expertise to promote innovations and boost cost-competitive indigenous manufacturing to realize the vision of “Atmanirbhar Bharat”. Shri K. Rajaraman, Secretary, DoT, Government of India delivered the inaugural address.



Shri K. Rajaraman, Secretary, DoT, Government of India delivered the inaugural address at the Workshop on 'Exploiting the potential of Indian Telecom R&D together-The way forward' on 2nd Dec, 2021 (Virtual mode)



Special address by Ms Anita Praveen, the then Special Secretary, DoT, at the Workshop on 'Exploiting the potential of Indian Telecom R&D together-The way forward' on 2nd Dec, 2021 at C-DOT campus, Delhi

❖ **AfricaCom 2021 during 8th to 12th November, 2021**

C-DOT participated in AfricaCom 2021 held during 8th to 12th November 2021 as virtual Exhibition. This year's main focus was "Paving the road to a 5G-enabled Africa". C-DOT showcased its indigenous Telecom technologies & innovative solutions.

❖ **MoU signed between C-DOT and RailTel on 14 Oct 2021**

C-DOT and RailTel signed MoU for cooperation in diverse areas of Telecommunications sector with key focus on modernization & expansion of nationwide communications networks.



Sh Puneet Chawla, CMD Raitel and Dr Rajkumar Upadhyay, Executive Director, C-DOT at the MOU signing-in ceremony.

❖ **Webinar on “Quantum Communication” on 12th October 2021**

C-DOT organized a webinar on “Quantum Communication” as part of “Azadi Ka Amrit Mahotsav” on 12 Oct, 2021 amid a galaxy of field veterans from C-DOT and academia who offered thoughtful insights into this novel area of research including Quantum Key Distribution (QKD) & Post-Quantum Cryptography (PQC).

❖ **Visit of Secretary, (DoT) to C-DOT, Delhi on 09 Oct 2021**

Shri K. Rajaraman, Chairman, Digital Communications Commission & Secretary, DoT, visited C-DOT Campus, Delhi on 09 Oct 2021 and witnessed the demonstration of C-DOT’s indigenous Telecom technologies & innovative solutions. He also inaugurated the futuristic Quantum Communication Lab and unveiled indigenously developed C-DOT Quantum Key Distribution (QKD) solution.



Shri K. Rajaraman Secretary, DoT, Government of India, addressing the C-DOT engineers and inaugurating the Quantum Communication Lab.

❖ **Virtual Technical Conference during C-DOT's 38th Foundation Day Celebrations on 3rd Sept, 2021**

C-DOT organized a virtual international technical conference as part of its 38th Foundation Day Celebrations in the august presence of Shri Anshu Prakash, the then Secretary, DoT. He inaugurated the C-DOT Common Alerting Protocol (CAP) Lab for pan-India implementation of integrated disaster & emergency alert system.



Shri Anshu Prakash, the then Secretary, DoT, Government of India attended C-DOTs 38th foundation day



Shri Anshu Prakash, the then Secretary, DoT inaugurated the C-DOT Common Alerting Protocol (CAP) Lab for Pan-India implementation of integrated disaster & emergency alert system

❖ **Visit of Hon'ble Minister of State for Communications to C-DOT, Bangalore on 17th July 2021**

Honourable Minister of State for Communications, Shri Devusinh Chauhan visited C-DOT Bangalore campus on 17th July, 2021. C-DOT showcased its indigenous Telecom technologies & innovative solutions to Honourable Minister of State for Communication.



Honourable Minister of State for Communications Government of India, Shri Devusinh Chauhan visited C-DOT Bangalore campus on 17th July 2021 and witnessed C-DOTs indigenous Telecom technologies & innovative solutions

❖ **Visit of Hon'ble Minister of State for Communications to C-DOT Campus, Delhi on 13th July 2021**

Hon'ble Minister of State for Communications, Shri Devusinh Chauhan visited C-DOT Campus, Delhi on 13th July 2021 and witnessed the demonstration of C-DOT's indigenous Telecom technology innovations. Hon'ble Minister provided valuable guidance for accelerating innovative research to fulfil the needs of the people, boost local manufacturing and achieve rural development.



Hon'ble Minister of State for Communications, Government of India, Shri Devusinh Chauhan interacted with C-DOT engineers and witnessed the demonstration of C-DOTs indigenous technology solutions at C-DOT campus, Delhi

❖ **Webinar on “The National Standards for IoT – Smart Cities Perspective” during 5-8 July 2021**

C-DOT and TSDSI organized a webinar series on “The National Standards for IoT – Smart Cities Perspective” during 5th -8th July 2021 amid insightful deliberations with field experts on diverse themes related to “IoT Standardization”, “Security, Privacy & Trust” and “one M2M use cases”. Shri Anshu Prakash, the then Secretary, DoT delivered the inaugural address.



Shri Anshu Prakash, the then Secretary, DOT, delivered the inaugural address in the webinar series organized virtually on “The National Standards for IoT – Smart Cities Perspective” during 5th -8th July 2021

(v) Major Technical Achievements

a. 4G/ 5G Solution

Technology development programs are also ongoing in the next generation mobile technologies like 4G & 5G whereby a converged platform is being developed for delivery of services to fixed and mobile subscribers.

C-DOT has partnered with M/s Tata Consultancy Services (M/s TCS) for submission of response to 4G EoI floated by BSNL for conducting pilot trials of its 4G Core solution in BSNL network.

In the midst of the ongoing 4G pilot trials being conducted by C-DOT in partnership with M/s TCS; India witnessed a historic moment when Hon’ble Minister of Communications, Sh. Ashwini Vaishnaw, on 10th October 2021, made the first call over the Indian 4G network of BSNL (powered by C-DOT’s 4G Core Solution) and took to Twitter expressing happiness that Prime Minister Narendra Modi’s vision of Atmanirbhar Bharat is taking shape.

b. CAP (Common Alert Protocol)

C-DOT launched Pilot project for CAP implementation in state of Tamil Nadu in Jan 2020 which was successfully completed in March 2021. After successful completion of this Pilot' C-DOT's proposal for implementing pan India Integrated Alert System was accepted and sanctioned by competent authority. MoU for the same has been signed between C-DOT and NDMA in August 2021. The Platform is being extensively used for disseminating alerts during natural disasters in the country.

c. Platform for implementing the National Security Directive on Telecommunication Sector

C-DOT is developing a platform for implementing the National Security Directive on Telecommunication Sector for facilitating the maintenance of the Trusted Sources, Secured Content and Trusted Products within the administrative jurisdiction of India.

d. Quantum Technology and other Advanced Cyber Security Projects

C-DOT is developing Post-Quantum Cryptography solution and Quantum Key Distribution System (QKD) for applications in the areas of Government, Defense & strategic sector as well as in Banking & Financial sector.



Splicing work





CHAPTER 6

Regulatory and Appellate Bodies

6.1 THE TELECOM REGULATORY AUTHORITY OF INDIA

The Telecom Regulatory Authority of India (TRAI) has been working with a mission to ensure and protect the interests of consumers and service providers. Efforts have been made for creation of conducive environment for the growth of telecommunications, broadcasting & cable services sector and nurture it in a manner and pace to enable India to play a leading role in the emerging global information society. The Authority initiated various measures to promote the growth and development of the telecom and broadcasting sectors during 2021. These measures have resulted in overall benefits to the industries and consumers in terms of choice of services, affordable tariff, and better quality of services etc, as is evident from the exponential growth in these sectors.

A. Recommendations

During the year 2021-22, the Authority made following recommendations to the Government:

Recommendations dated 19th August, 2021 on “Enabling Unbundling of Different Layers Through Differential Licensing”

DoT through its letter No. 20-281/2010-AS-I Vol.XII (pt) dated 8th May 2019, inter- alia, requested TRAI to furnish recommendations on enabling unbundling of different layers through differential licensing, under the terms of the clause (a) of sub-section (1) of Section 11 of the Telecom Regulatory Authority of India Act, 1997 (as amended).

Based on the comments / inputs received from the stakeholders and on its own analysis, the Authority finalized the recommendations on “Enabling Unbundling of Different Layers Through Differential Licensing”.

The salient features of these recommendations are:

- (i) A separate authorization under Unified License should be created for Access Network Provider (network layer) to provide network services on wholesale basis. Under this authorization for Network layer only, the Access network provider shall not be permitted to directly provide services to the end customers under the authorization.
- (ii) The scope of the Access Network Provider shall be to establish and maintain access network, including wireless and wireline access network, and selling the network services (capable of carrying voice and non-voice messages and data) on a wholesale basis to VNOs (service delivery operators) for retailing purpose. The Access Network Provider should be permitted to have capabilities to support all the services mentioned in the scope of Access Service authorization under Unified License (UL).

- (iii) The Access Network provider should also be permitted to provide/share its network resources to/with the telecom service providers who are licensees under section 4 of the Indian Telegraph Act, 1885, and vice versa.
- (iv) Licensed service area for Access Network Provider should be kept same as that existing in Access service authorization under UL.
- (v) Access Network provider should be responsible for all the network related terms and conditions specified in the Access Service Authorization under Unified License. However, the terms and conditions related to service delivery should be excluded.
- (vi) Like Unified Licensee with access authorization, the Access Network provider should also be permitted to acquire spectrum through spectrum auctions, subjected to the prescribed spectrum caps, enter into spectrum trading and spectrum sharing arrangement with the other Access Network providers and unified licensees with Access authorization. It should also have access to backhaul spectrum, numbering resources and right to interconnection.
- (vii) The existing licensing regime of Unified License shall be continued. However, if a licensee with Access Service Authorization under UL wishes to migrate to segregated network layer and service layer regime, it should be permitted to do so.
- (viii) The Network Provider shall be permitted to take a separate license under UL(VNO) framework for provision of services to the end subscribers.
- (ix) To bring in transparency and accountability in the entire process for VNO(s) seeking and entering into an agreement with Network provider or Unified Licensee, a broad framework should be prescribed, including the definite process in respect of application filing, application processing and defined timelines etc.
- (x) The framework should provide the process to be followed for applying for wholesale capacity/network resources along with the detailed proposal, process of acceptance/rejection by the Unified Licensees (including Access Network Providers), along with defined timelines etc.
- (xi) The License Fee and Spectrum Usage charges applicable for the Access Network Provider Authorization should be same as that applicable to the Access Service Authorization under Unified License.
- (xii) Since the combined scope of Access Network Provider and UL- VNO (Access service) is equal to the scope of a Licensee with Access Service authorization under UL, the Minimum Equity, Minimum Net worth, Entry Fee and FBG/PBG requirements for the proposed Access Network provider authorization may be arrived at by deducting the amounts prescribed for UL (VNO- Access Service) from the amount prescribed for UL-Access Service authorization.

The recommendations are available on website www.traai.gov.in.

Recommendations dated 26th August, 2021 on “Licensing Framework for Satellite based connectivity for low bit rate applications.”

DoT through its letter dated 23rd November 2020, has requested TRAI, under section 11(1)(a) of the TRAI Act, 1997 to furnish recommendations on “Licensing framework to enable the provisioning of Satellite based connectivity for low bit-rate applications for both commercial and captive usage”.

Low Bit-Rate applications and IoT devices require low cost, low power and small size terminals that can effectively perform the task of signal transfer with minimum loss. Many sparsely populated areas with important economic activities suited for IoT related services may not have terrestrial coverage or other forms of connectivity. Therefore, Satellites can help bridge this gap by providing coverage to even the most remote areas and will help in fulfilling connect India mission.

Based on the comments / inputs received from the stakeholders and on its own analysis, the Authority on 26th August 2021 sent its recommendations on “Licensing Framework for Satellite based connectivity for low bit rate applications.”

The salient features of these recommendations are:

- a. For provision of Satellite-based connectivity for IoT and low-bit-rate applications, the relevant service licensees may provide connectivity as per scope of their authorization for any kind of network topology model including Hybrid model, Aggregator model and Direct-to satellite model.
- b. All types of satellite viz. Geo Stationary Orbit (GSO) and Non-GSO (NGSO) satellites and any of the permitted satellite frequency bands may be used for providing satellite-based low-bit-rate connectivity.
- c. The relevant existing authorizations under Unified Licensing framework may be suitably amended for enabling satellite-based low-bit-rate connectivity.
- d. Scope of authorizations of GMPACS service, Commercial VSAT CUG service and NLD service under Unified License and Captive VSAT CUG service license may be suitably amended to include provision of satellite-based low-bit-rate connectivity for IoT devices.
- e. The Service Licensees should be permitted to obtain satellite bandwidth from foreign satellites in all the permitted satellite bands in order to provide satellite-based services. They should be permitted to choose the foreign satellite from the approved list, published for the purpose by the Government and to lease the satellite capacity directly from the chosen foreign satellite and should be mandated to establish the Earth Station in India, corresponding to the chosen foreign satellite system, prior to using the leased capacities.
- f. The Government may come out with a road map detailing schedule of launch of communication satellites and availability of the domestic satellite capacities in India to facilitate the service licensees to plan and optimize their capacity procurement.

- g. The Authority has recommended various measures to make the services cheaper and affordable like permitting hiring of foreign capacities for a longer period as per need instead of 3-5 years, removal of facilitation charges by the government when hiring foreign capacities from the approved list of foreign satellites/satellite systems, leasing the satellite capacity directly from the chosen foreign satellite, reducing the role of intermediaries and removing the prevailing NOCC charges.
- h. To improve Ease of Doing Business (EoDB), it has also been recommended that DoT should put in place a comprehensive, simplified, integrated, end-to-end coordinated, single window online common portal for all the agencies involved in grant of various approvals/permissions/allocations etc, like DoS, DOT, WPC and NOCC, wherein the service licensees can place their request and the agencies respond online in a transparent and time bound manner. All the guidelines, applications forms, fee details, processes, timelines, and application status should be made transparently available on portal.

The recommendations are available on TRAI's website www.trai.gov.in.

Recommendations dated 31st August 2021 on “Roadmap to Promote Broadband Connectivity and Enhanced Broadband speed.”

DoT as per objectives of the National Digital Communications Policy - 2018 sought recommendations of the Authority on issues relating to the broadband speed and its categorizations, infrastructure creation, and promoting broadband connectivity.

DoT vide its another reference letter dated 12th March 2021 sought consolidated and updated recommendations on proliferation of fixed-line broadband services in the country. In this reference DoT referred additional issues relating to License Fee exemption and direct benefit to consumers.

Based on the inputs received from the stakeholders and on its own analysis, TRAI has finalized its recommendations on “Roadmap to Promote Broadband Connectivity and Enhanced Broadband speed”.

The salient features of the recommendations are as follows:

- (i) Based on download speed, fixed broadband has been categorized into 3 different categories - Basic, Fast and Super-fast.
- (ii) To encourage lakhs of cable operators to provide broadband services, the Authority's past recommendation on “Definition of Revenue Base(AGR) for the Reckoning of Licence Fee and Spectrum Usage Charges “has been reiterated.
- (iii) To enhance mobile broadband speed in rural and remote areas by fiberisation of the cellular networks, backhaul connectivity on optical fiber using the BharatNet network with Service Level Agreements (SLA) should be made available to service providers.
- (iv) To incentivise investment in the last-mile linkage for fixed-line broadband, notify a skill development plan and an interest subvention scheme for Cable Operators registered as Micro and Small size enterprises.

- (v) To enhance mobile broadband speed, radio spectrum used for backhauling connectivity of cellular networks should be assigned to service providers on demand and in time bound manner.
- (vi) Creation of National Portal for RQW permissions to facilitate expeditious rollout of telecom and other essential utilities infrastructure.
- (vii) Incentivize establishment of common ducts and posts for fiberisation of networks. In line with Bhart Net Project, exempt RQW charges for next five years for expeditious laying of common ducts and posts.
- (viii) A Centrally Sponsored Scheme (CSS) to incentivize States/ UTs for RoW reforms. Incentives to be linked to the net improvement in the Broadband Readiness Index (B131) score of a State / UT.
- (ix) Mandates co-deployment of common ducts during the construction of any roadway, railway, and water & gas pipelines receiving public funding.
- (x) To facilitate the sharing of passive infrastructure such as ducts, optical fibers, posts, etc., all the passive infrastructure available in the country should be mapped by each service provider and infrastructure provider using Geographic Information System (GIS). The Telecom Engineering Center (TEC) should notify the standards for this purpose. Establishment of e- marketplace on common GIS platform to facilitate leasing and trading of passive infrastructure.
- (xi) Target linked incentive i.e. License Fee (LF) exemption on specified revenues to eligible licensees for proliferation of fixed-line broadband services in urban and rural areas.
- (xii) A pilot DBT (Direct Benefit Transfer) scheme in rural areas for proliferation on “fixed line broadband subscribers. After ascertaining the practicability of the pilot DBT scheme in accelerating the growth of fixed-line broadband services; specifics of the DBT scheme like eligibility criteria for beneficiaries, quantum of benefit, period of the scheme etc. to be Worked out subsequently.

The recommendations are available on TRAI's Website www.traigov.in.

TRAI's Response dated 27th November 2021 to DoT back reference dated 14th October 2021 on Recommendations on “Reforming the Guidelines for Transfer/Merger of Telecom Licenses”.

TRAI had sent its recommendations on “Reforming the Guidelines for Transfer / Merger of Telecom Licenses” on 21st February 2020 to the DoT. Through the Letter No. 11-11/2020-Policy dated 14th October 2021, DoT referred back some of the TRAI's recommendations on ‘Reforming the Guidelines on Transfer / Merger of Telecom Licenses’ dated 21st February 2020 for reconsidered opinion/recommendations.

After considering the views given by the DoT, the Authority has furnished its response to the Government. The response to the Government has been placed on TRAI's website www.traigov.in.

B. Consultation Papers

Consultation Paper dated 13th May, 2021 on “ Validity period of Tariff Offers”.

TRAI on 13th May, 2021 released a Consultation Paper on “Validity period of Tariff Offers”. TRAI has been receiving a lot of references from consumers regarding the offering of tariff by telecom service providers (TSPs) for 28 days instead of a monthly offering. As per the extant regulatory framework for tariff, tariffs for telecommunication services are forborne except for:

- (i) rural fixed line services;
- (ii) national roaming services;
- (iii) international private leased circuits and domestic leased circuits; and
- (iv) mobile number portability charges.

However, based on the feedback received from consumers through various channels, it is felt that certain tariffs/vouchers and their validity offered by TSPs are not to the satisfaction of large section of consumers. The purpose of this consultation paper is to identify such tariff offers and explore the possibility of making tariff/vouchers offered by service providers and their validity issues sync with aspiration/requirements of consumers at large.

In this regard, a Consultation Paper on “Validity period of Tariff Offers” was released on 13th May, 2021 seeking inputs from the stakeholders.

Consultation Paper dated 3rd November, 2021 on “Tariff related issues to SMS and Cell Broadcast alerts disseminated through Common Alerting Protocol (CAP) platform during disasters/non-disasters”.

DoT requested TRAI to provide tariff for SMS and Cell Broadcast alerts/messages to be disseminated by TSPs through CAP platform during disasters/ non-disasters. DoT allows SMS/ Cell Broadcast free of cost only for a definite period and for events where specific request for free of cost messages comes from NEC/ NCMC/ SEC/ Nodal Authorities. However, there are occasions when the Government would like to send alert messages to the public forewarning of a possible disaster or occasions where public has to be informed of special events such as holding of relief/ vaccine/ medical camps/ specific law and order related situations etc.

TRAI on 3rd November 2021 released a Consultation Paper on “Tariff related issues to SMS and Cell Broadcast alerts disseminated through Common Alerting Protocol (CAP) platform during disasters/non-disasters”.

The purpose of this consultation paper is to elicit stakeholders’ views on the tariff for SMS/Cell Broadcast disseminated by TSPs through CAP platform during disasters/ non-disasters and to understand the technical aspects that might have an impact on the costing of the service.

As part of the consultative process, the Consultation Paper has been uploaded on the TRAI website for written comments on the consultation paper from the stakeholders by 01st December 2021 and Counter-comments, if any by 15th December 2021.

Consultation Paper dated 15th November 2021 on “Licensing Framework for Establishing Satellite Earth Station Gateway.”

DoT, through its letter dated 10th September 2021, has requested TRAI, under section 11(1)(a) of the TRAI Act of 1997, to furnish recommendations on “Licensing Framework for Establishing Satellite Gateway”.

In its letter, DoT has stated that the current licensing framework of DoT with respect to satellite services has limitations with respect to proposed satellite gateway(s) operations, as there are no provisions regarding usage of gateway by service provider established by a satellite constellation operator. Considering the constraints of the existing provisions in respect of proposed satellite gateway(s) operations, DoT has stated that there is a need for suitable licensing framework and requested TRAI to examine all the factors holistically and recommendation on licensing framework for satellite gateway(s) operations may be suggested including the entry fee, license fee, bank guarantee, NOCC charges, and any other issue(s) which may be relevant for LEO/MEO/HTS systems.

In this regard, a Consultation Paper on “Licensing Framework for Establishing Satellite Earth Station Gateway” was released on 15th November 2021 seeking inputs from the stakeholders.

The consultation paper is uploaded in the TRAI’s official website www.traai.gov.in.

Consultation Paper dated 30th November 2021 on “Auction of spectrum in the frequencies identified for International Mobile Telecommunications (IMT) / 5G”.

DoT, through its letter dated 13th September 2021, requested TRAI to provide recommendations on “Auction of spectrum in the frequencies identified for International Mobile Telecommunications (IMT) / 5G”. Subsequently, DoT through its letter dated 23rd September 2021 informed about the Government’s telecom reform decisions with regard to future spectrum auctions and requested TRAI to consider/factor in the same while providing recommendations. Accordingly, DoT has, inter-alia, requested TRAI to provide recommendations on the following issues:

- a. Applicable reserve price, band plan, block size, quantum of spectrum to be auctioned and associated conditions for auction of spectrum in 526-698 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 3300-3670 MHz and 24.25 – 28.5 GHz bands for IMT/5G.
- b. Quantum of spectrum/band, if any, to be earmarked for private captive/isolated 5G networks, competitive/transparent method of allocation, and pricing, for meeting the spectrum requirements if captive 5G applications of industries for machine/plant automation purposes/M2M in premises.
- c. Associated conditions like upfront payments, applicable moratorium period after upfront payments, number of deferred payment instalments and other related modalities for auction of spectrum with validity for 30 years.
- d. For creating provisions for surrender of spectrum, conditions, and fee for such surrender of spectrum.

- e. Any other recommendations deemed fit for the purpose of spectrum auction in these frequency bands, including the regulatory / technical requirements as enunciated in the relevant provisions of the latest ITU-R Radio Regulations.

In this regard, TRAI has released a Consultation Paper on “Auction of spectrum in the frequencies identified for International Mobile Telecommunications (IMT) / 5G” on 30th November 2021 seeking inputs from the stakeholders. In this consultation paper specific issues have been raised for consideration of stakeholders on the above-mentioned issues.

Consultation Paper dated 8th December 2021 on “Ease of Doing Business in Telecom and Broadcasting Sector”

Telecommunication and Broadcasting sectors have emerged as key drivers of economic and social development and has made the country a favourite business destination amongst investors. Telecom and broadcasting sector have immense potential to move on the higher trajectory of growth.

TRAI on 8th December 2021, *suo-moto* floated consultation paper on “Ease of Doing Business in Telecom and Broadcasting Sector” to identify various concerns in the existing processes and suggest measures for the reforms required in the regulatory processes, policies, practices and procedures in the telecom and broadcasting sector for creating conducive business environment in India.

The consultation paper sought comments of the stakeholders on the various issues and difficulties being faced by them in commencement and operation of their businesses in telecom and broadcasting sectors in the country. Comments are invited to suggest measures for making the existing processes simple, business friendly and creating an ecosystem for attracting more and more investment in the sectors. It also emphasizes on single window concept for submitting applications and getting approvals from different agencies without running to each agency separately for its approval.

The consultation papers also sought comments on simplifying the applications which have just the required details for the conduct of business and well- documented timelines with query response systems, having seamless integration with other ministries.

Consultation Paper dated 16th December 2021 on “Regulatory Framework for Promoting Data Economy Through Establishment of Data Centres, Content Delivery Networks, and Interconnect Exchanges in India”.

TRAI on 16th December 2021 issued the Consultation Paper on “Regulatory Framework for Promoting Data Economy Through Establishment of Data Centres, Content Delivery Networks, and Interconnect Exchanges in India”.

Digital infrastructure is boosting the data economy, and the services are fast moving beyond the traditional telecom services domain. The key contemporary infrastructure that is required to boost the digital ecosystem and facilities include Data Centres, Content Delivery Networks and Internet Exchange Points.

This Consultation Paper has been initiated *suo-moto* by the Authority to seek the inputs of stakeholders on regulatory framework for promoting the establishment of (i) Data Centres, (ii) Content Delivery Networks, and (iii) Internet Exchange Points in the country.

The Consultation Paper has been placed on TRAI's website www.traai.gov.in inviting written comments on the Consultation Paper by 13th January 2022 and counter-comments, if any, by 27th January 2022 from the stakeholders.

C. Directions

Direction dated 2nd September 2021 to Telecom Service Providers for ensuring compliance with TRAI's Regulations/Directions/Advisories/Orders in respect to tariff Offerings.

TRAI in exercise of the powers conferred upon it under section 13, of the Telecom Regulatory Authority of India Act, 1997, and clause 10 of the Telecommunication Tariff Order, 1999, after having considered all aspects, and with an objective to ensure transparency, uniformity, and protection to subscribers, directs all telecom service providers, with immediate effect, to ensure that -

- i. only the tariffs reported to TRAI are offered through their channel partners/distributors/retailers/third-party apps/ etc. and;
- ii. all tariff offers comply with extant TRAI Regulations/Directions/Orders/etc. issued in this regard as, where the TSP's name/brand is used for marketing/ offering/selling products and services, the responsibility of ensuring compliance of TRAI's regulatory guidelines/ provisions shall remain with the TSP.

Direction dated 7th December 2021 to Telecom Service Providers for ensuring compliance with TRAI's Regulations/Directions in respect of outgoing SMS facility to porting out customers.

Through this direction TRAI directed all access service providers to enable, with immediate effect, for all mobile subscribers, both prepaid and postpaid, requesting for a unique porting code, the facility to send SMS on short code 1900, in order to exercise their right to avail porting facility in accordance with the Telecommunication Mobile Number Portability Regulations, 2009, irrespective of the value of the tariff offers/vouchers.

D. Tariff Orders

Draft Telecommunication Tariff (66th Amendment) Order, 2021 dated 24th November, 2021 on "Regulatory Framework for USSD-based tariff".

To protect the interests of the Unstructured Supplementary Service Data (USSD) users and to promote digital financial inclusion, rationalization of USSD charges is required. Accordingly, the Authority proposes to revise the framework for USSD based mobile banking and payment services by prescribing a "Nil" charge per USSD session for mobile banking and payment service, while keeping the remaining items of USSD unchanged.

The draft Amendment Order has been placed on TRAI's website(www.traai.gov.in) for written comments of the stakeholders.

E. Others

Consumer Outreach Programmes by TRAI

One of the important objectives of TRAI is to create awareness and safeguard consumer interest.

Given the importance of reaching out to consumers all over the country, TRAI has a public interface with telecom subscribers through its website, social media platforms such as twitter, Facebook, YouTube channel and through Consumer Outreach Programmes conducted across the country. TRAI also organizes seminars on contemporary technological and consumer related issues.

In the current situation of Corona virus pandemic, it was decided to conduct such programs via online platform. TRAI organised three Webinars on topics viz. "Internet of Things (IoT) - Trends, Security Challenges & Solution", "Cloud Computing - Demystified" and "Satellite Communications- Emerging Trends & Challenges" and TRAI also conducted two workshops for capacity building of Consumer Advocacy Groups (CAGs) in this financial year so far.

TRAI also conducted 34 Consumer Outreach Programmes (CoPs) through online mode in this financial year wherein large number of telecom consumers, representatives of CAG, representatives of Telecom Service Providers, officials of Government and Private Organizations, students from various engineering & management colleges have participated. Further, 16 CoPs are planned to be conducted till March 2022.

6.2 TELECOM DISPUTES SETTLEMENT & APPELLATE TRIBUNAL

The Telecom Regulatory Authority of India (TRAI) Act, 1997 (as amended up to date) provides for the establishment of the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) to regulate the telecommunication services, adjudicate disputes, and to act as appellate body under TRAI and other acts with the purpose to protect the interests of service providers and consumers of the Telecom, Broadcasting & Cable sector and to promote and ensure orderly growth of the Telecom, Broadcasting & Cable sectors and for matters connected therewith or incidental thereto. TDSAT was initially created with the purpose for speedy settlement and adjudication of disputes in telecom and broadcasting sectors. The jurisdiction of TDSAT has since then been expanded to exercise the jurisdiction, powers and authority conferred on the Appellate Tribunal by or under the Information Technology Act, 2000 and The Airport Economic Regulatory Authority of India Act, 2008 and the Aadhar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act 2016.

The TDSAT was created in the year 2000 by the Central Government under the TRAI Act, 1997 (as amended up to date) to settle and adjudicate disputes involving licensor, licensee, and a group of consumers. In January, 2004 the jurisdiction of TDSAT was extended to include broadcasting and cable services besides telecommunication services. In May, 2017 the jurisdiction of TDSAT was further extended to include appellate jurisdiction of Airport Economic Regulatory Authority and as Cyber Appellate Tribunal (CyAT) under the I.T. Act.

The jurisdiction of TDSAT is exclusive and an appeal against its order lies to the Hon'ble Supreme Court of India on points of law only. However, under the provisions of TDSAT on cyber appeals matters lie before High Court. Statutory appeal does not lie against the interim order of TDSAT. TDSAT exercises both original as well as appellate jurisdiction. TDSAT is an expert body and comprises of a Chairperson and two Members. Hon'ble Mr Justice Shiva Kirti Singh is the Chairman at present with Hon'ble Sri S.K. Gupta as the Member

The TDSAT has also set up a Registrars' Court which has started functioning w.e.f. 22nd July 2013 for completion of pleadings, framing of issues and recording evidence etc. to speed up the disposal of cases before the bench of TDSAT.

TDSAT formulated its own Procedure (TDSAT Procedure 2005) based on the principles of natural justice world over, the disputes in telecom and broadcasting sectors are resolved by the regulator or normal courts. However, in India, a unique Institution in the form of TDSAT exists for speedy settlement and adjudication of disputes in telecom and broadcasting sectors. Indian model for resolution of disputes has been seen with great interest by various telecom regulators across the world.

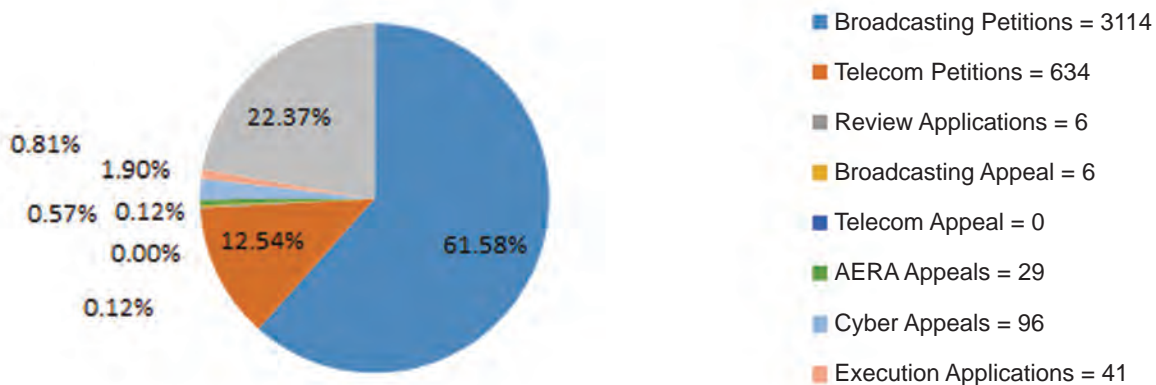
As sector member of International Telecommunication Union (ITU), TDSAT has been participating in the international seminars, conferences and events organized by ITU and other international bodies. Officers/ Officials of TDSAT from time to time, are being deputed to participate in Training programmes organized by the National Productivity Council.

In telecom sector various types of matters relating to interconnection, inter-operator billing disputes, customer application form (CAF), certain policy and regulatory actions failing to address legitimate expectations of stakeholders, recovery of outstanding dues of stakeholders, licensing disputes including disputes on computation of Adjusted Gross Revenue (AGR) and allocation of spectrum, disputes on access deficit charge (ADC) etc., can be filed in TDSAT.

In Broadcasting and Cable sector, cases relating to signal disconnection/ refusal/denial, pricing of channels/ bouquets, non-payment/ recovery of subscription/carriage charges, piracy of signals/ illegal transmission of signals, licensing disputes, disputes arising out of tariff order of the TRAI etc., can be filed before TDSAT.

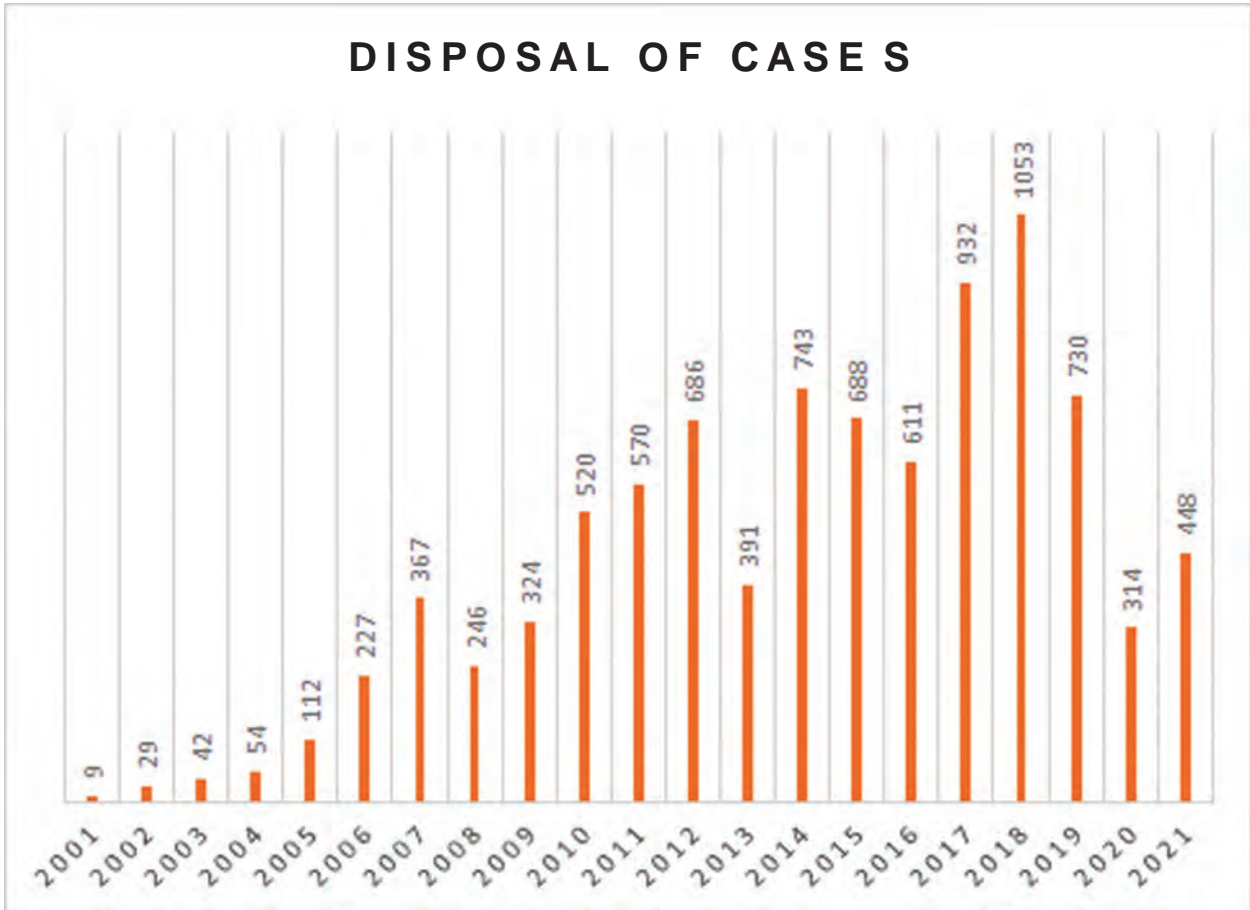
The number of cases in the Tribunal has been increasing every year since its establishment in May, 2000.

Pendency Of Cases on 31/12/2021 is 5057



The total number of cases filed before TDSAT in the Year 2001 was 57 (including Petition/ Appeal/ E.A./R.A.), which increased to 1429 cases in 2021 (excluding M.A.) till 31st December 2021. Total cases pending before the Tribunal on 31st December 2021 is 5057 (including 1131 miscellaneous applications).

The disposal of cases has kept pace with the filing and all efforts are made to ensure that there is speedy disposal. All together 448 cases have been disposed off in the year 2021. So far since its constitution TDSAT has disposed for 9127 cases out of the total 14186 cases filed before it.

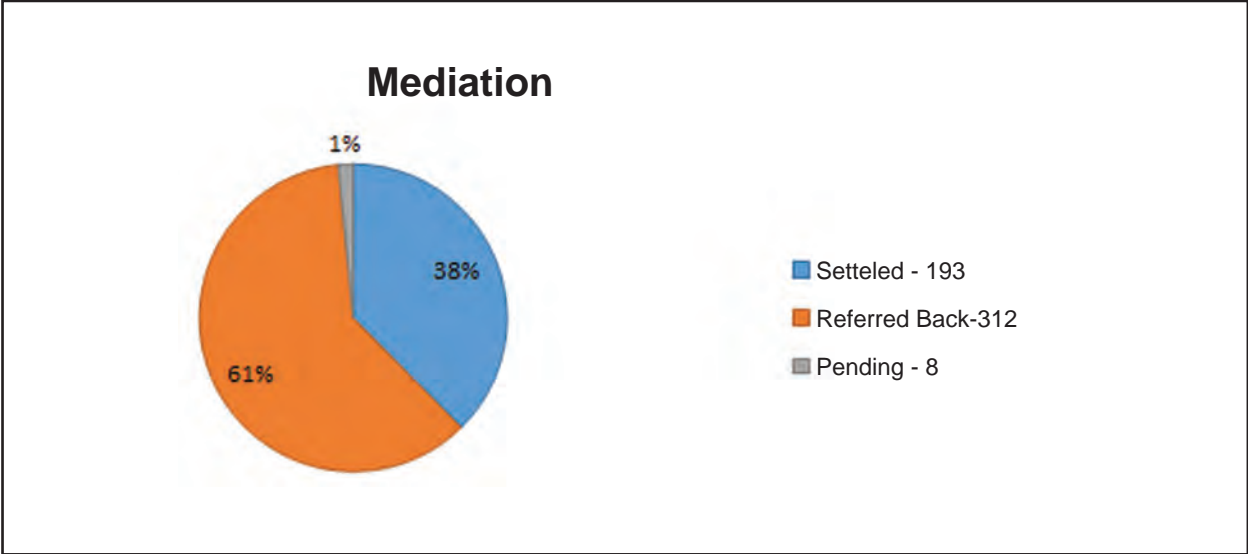


The decline in number of disposal of cases in the year 2020 and 2021 is attributable to vacancy in the strength of the bench. The declined in number of disposed of cases is also because of covid-19 pandemic. TDSAT started virtual courts since July 2020 and since then is working virtually throughout the lockdown period.

TDSAT maintains its own website with all judgments, orders and other information relating to the tribunal uploaded on its website at www.tdsat.gov.in.

With the purpose of providing speedy justice ADR mechanism has been promptly adopted by the TDSAT and it has also set up a full fledged Mediation Centre to help litigants go through a mediation

process and arrive at a mutually agreed settlement of disputes with the help of trained mediator. The Mediation Centre has started functioning from 29th July 2013 and has been successful in helping settle large number of cases so far. As on 31st December 2021 a total number of 513 cases have been referred to Mediation Centre. Out of this, a total number of 193 cases have been settled and 312 numbers of cases were referred back to the Tribunal unsettled. The remaining 8 cases are currently under mediation.



DEPARTMENT OF TELECOMMUNICATIONS

S.No	Description	STATEMENT OF INSTITUTION, DISPOSAL AND PENDENCY OF CASES AS ON 30/11/2021 04:41:38																				TOTAL	TOTAL	TOTAL																					
		INSTITUTION										DISPOSAL																																	
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				2021	2021	2021																		
1	Petition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311	592	302	362	424	289	281	281	155	103	46	4806	3016												
	B.P.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	364	311	308	307	251	269	364	311	155	103	46	4806	3016												
	T.P.	24	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	15	212	371	132	65	43	34	36	150	25	10	1346	634												
	Total	24	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	523	963	634	427	467	323	317	431	180	113	46	6152	3650												
2	Review Application	0	1	2	2	3	7	17	5	9	11	14	19	9	11	2	9	22	3	11	5	3	11	5	3	165	6																		
	Appeal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	4												
	T.A.	12	15	32	2	10	8	4	6	8	0	2	11	4	0	0	0	1	4	5	0	0	0	0	0	0	0	0	0	0	0	124	0												
	A.A.	0	0	0	0	0	0	0	0	0	5	14	12	14	1	0	2	0	3	1	0	0	0	0	0	0	0	0	0	0	0	53	29												
	C.A.	0	0	0	0	0	0	0	0	0	1	0	8	11	3	7	5	7	1	1	6	9	0	0	0	0	0	0	0	0	0	65	98												
	Total	12	15	32	5	12	18	16	11	17	22	27	38	44	18	39	15	12	40	41	17	17	468	12	15	32	5	12	18	16	11	17	22	27	37	40	13	336							
4	Received on Transfer from Trial	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0													
5	Received on Transfer from High Court	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0													
6	On Remand from SC	5	1	1	0	2	3	10	6	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0													
7	Execution Application	0	0	0	0	7	2	18	27	4	10	36	24	46	15	27	13	30	15	13	21	9	4	321	0	0	0	0	0	0	0	280	41												
	Total	57	37	55	70	174	374	403	297	327	507	588	1084	560	601	761	883	766	949	635	934	765	10827	57	37	55	70	174	374	403	297	327	507	588	1065	511	474	493	365	354	464	212	122	49	
8	Misc Application	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	194	22													
	Grand Total	57	37	55	70	174	374	403	297	327	507	588	1085	564	611	783	965	799	977	651	942	777	11043	57	37	55	70	174	374	403	297	327	507	588	1066	515	483	513	446	386	492	224	127	51	7192
	Grand Total																					165	6	94	4	124	0	53	29	65	98	132	16	0	13	36	0	280	41	6998	3829	194	22	3851	

**Statistics of Mediation Centre
(29th July 2013 to 30th November 2021)**

S.No.	Year	No. of cases referred to the Mediation Centre	Cases Settled by Mediation Centre	Referred back to Hon'ble Tribunal	Cases pending
1.	2013-2014	233	102	131	Nil
2.	2015	97	36	61	Nil
3.	2016	42	10	32	Nil
4.	2017	52	12	40	Nil
5.	2018	52	18	34	Nil
6.	2019	27	12	12	03
7.	2020	04	00	01	03
8.	2021	06	03	01	02
	Total	513	193	312	08





Underground Repair Work



Chapter 7

Administration, Training and Swachh Bharat

7.1. RIGHT TO INFORMATION

- 7.1.1 The Department of Telecommunication (DoT) has been implementing the Right to Information Act (RTI), 2005 since its inception. An RTI Cell has been established in the Department for receiving RTI Applications/Appeals for entire Department and forwarding the same to the concerned CPIOs/FAAs of the Department and transferring to other Public Authorities.
- 7.1.2 DoT and its Attached/Subordinate Offices/Societies are separate Public Authorities in terms of Section 2(h) of RTI Act, 2005. Each of these Public authorities has its own Central Public Information Officer (CPIOs) / Appellate Authorities (AAs). For any information relating to these organisations applications need to be submitted to the concerned Public Authorities as per provisions of RTI Act, 2005. All Public Authorities have also hosted relevant inputs/documents on their respective websites, as required under Section 4 of the RTI Act. The relevant contents are reviewed and updated periodically by the concerned Public Authorities.
- 7.1.3 The Department has also got conducted a third party audit of the pro-active disclosure under RTI Act, 2005 for the financial year 2020-21 through the National Institute of Communication Finance (NICF), a designated Training Institute under DoT.
- 7.1.4 The facility of receiving and processing RTI applications/appeals online through the RTI Web-Portal of Department of Personnel & Training, has been started in the Department on 23.08.2013. This is strengthening the system of quick disposal and monitoring of RTI applications and appeals. All PSUs under the department have also made Online portal.
- 7.1.5 To facilitate the quick disposal of RTI applications/appeals, 115 CPIOs and 61 First Appellate Authorities are functioning. The details of RTI Applications/Appeals received and disposed of as on 31.12.2021 are as below: -

	Total RTI applications received	Total RTI application disposed
Online	2921	2718
Offline	246	-

	Total RTI Appeals received	Total RTI Appeals disposed
Online	246	233
Offline	22	-

7.2 PUBLIC GRIEVANCE

7.2.1 Function & Role:

The function and roles assigned to Public Grievance (PG) Wing of DoT includes:

- (i) Handling of Public Grievances through Centralized Public Grievance Redressal and Monitoring System (CPGRAMS);
- (ii) Management of Telecom Consumer Grievance Helpline (Short Code-1063);
- (iii) Dealing with grievances registered on telephone / fax / posts / by hand, etc.;
- (iv) Citizen's Charter for DoT;
- (v) Arbitration matters;
- (vi) Parliament Questions, fulfilment of Assurances, Court Cases, RTI Matters, audit paras and administrative matters related to PG Cell;
- (vii) Handling of VIP and PMO references;
- (viii) Handling of grievances received from higher authorities / offices;
- (ix) Create awareness amongst the stakeholders, organize workshop/training and inspect subordinate office for better resolution of customer grievances;
- (x) Coordinate with other Ministries/ Departments related to PG.

7.2.2 Grievance Redressal Mechanism in Telecom Sector:

- (i) The primary responsibility of addressing the service related, billing, quality of service grievances lies with TSP, which emanates from licensing terms and conditions. As per licensing conditions;

“Any dispute, with regard to the provision of SERVICE shall be a matter only between the aggrieved party and the LICENSEE, who shall duly notify this to all before providing the SERVICE. And in no case the LICENSOR shall bear any liability or responsibility in the matter. The Licensee shall keep the Licensor indemnified for all claims, cost, charges or damages in the matter.”

- (ii) TRAI has issued “Telecom Complaint Redressal Regulations 2012” (available on TRAI website, www.trai.gov.in) to streamline the process of grievance redressal mechanism by the service providers. The regulation provides for setting up of two-tier grievance redressal mechanism by all TSPs as per following details:
 - a) Establishment of a Complaint Centre with a toll-free “Customer Care Number”. The Complaint Centre will be responsible to address all the complaints received by them. Provisions have also to be made such that Customer Care Number of TSPs could be accessed from any other service provider's network. Every complaint at the Complaint Center shall be registered by giving a unique docket number.

- b) Establishment of an Appellate Authority: Every service provider shall appoint appellate authorities consisting one or more persons to deal with grievances. If a consumer is not satisfied with the redressal of his complaint, or his complaint remains unaddressed or no intimation of redressal of the complaint is received within the specified period, he can approach the Appellate Authority for redressal of his complaints within 30 days. Every service provider shall constitute a two-member Advisory Committee in each of the service areas to advise on all such appeals to the Appellate Authority. The Appellate authorities shall dispose of the grievance, by taking recommendations of the advisory committee into consideration, within 39 days of receipt of the grievance.

Thus, the responsibility of redressal of grievances in the telecom sector lies with the concerned TSPs/ Internet Service Providers (ISPs), organizations/ subordinate units / PSUs / administrative sections. A complainant may approach to PG wing of DoT after exhausting the channels of redressal of grievance at concerned Organization / service provider level.

However, PG Wing of DoT, without prejudice to the right of a complainant to approach an appropriate court of law, acts as a facilitator for resolution of grievances so received. PG wing of DoT acts as next higher level in the grievance redressal mechanism. PG wing attempts to resolve the grievance by coordinating with all the concerned stake holders including TSPs/ISPs, and other concerned agencies in time bound manner to the satisfaction of the complainants.

7.2.3 Grievance can be lodged to PG Wing of DoT through the following means:

- a) **By Post:** Public Grievances Cell, Department of Telecommunications, 6th Floor, Mahanagar Door Sanchar Bhawan, Old Minto Road, J. L. Nehru Marg, New Delhi – 110002.
- b) **By hand:** Information & Facilitation Counter, Sanchar Bhawan, 20, Ashoka Road, New Delhi- 110001.
- c) Through Fax: FAX No. 011-23232244
- d) Through Phone: Phone No. 011-23221166, 1063 (Toll Free)
- e) Through Web Portal: www.pgportal.gov.in

7.2.4 Centralized Public Grievance Redress and Monitoring System(CPGRAMS)

- i) CPGRAMS is the platform based on web technology which primarily aims to enable submission of grievances by the aggrieved citizens from anywhere and anytime (24x7) basis to Ministries/Departments/Organizations who scrutinize and take action for speedy and satisfactory redressal of these grievances. Tracking of grievances is also facilitated on this portal through the system generated unique registration number.

- ii) DoT is processing grievances registered by citizens on the CPGRAMS Portal, which includes complaints received in Department of Administrative Reforms & Public Grievance (DARPG), Directorate of Public Grievances (DPG), Department of Pension & Pensioner's Welfare (DoPPW), President's Secretariat and Prime Minister's Office in the system and accessible at the website www.pgportal.gov.in. DoT wings, DoT LSAs, DoT PSUs, TSPs, ISPs etc. have been created as subordinate organizations for online handling of grievances.
- iii) Grievances received in the PG wing through various offline modes are also uploaded on the CPGRAMS Portal for online monitoring and tracking.
- iv) The details in respect of complaints handled for the year 2021-22 (from 01.04.2021 to 31.12.2021) are given as under: -

Opening Balance as on 1st April, 2021	No. of grievances booked during 1st April, 2021 to 31 st December, 2021	Total	No. of grievances disposed of during 1st April, 2021 to 31 st December, 2021	Pending grievances as on 31 st December 2021
2196	45001	47197	45708	1489

- v) In January 2021, Appeal module has been made operational in CPGRAMS portal, whereby the complainant can file an appeal on CPGRAMS Portal if it is not satisfied with the redressal / reply of the grievance. DoT is processing Appeals registered by citizens in the CPGRAMS Portal.
- vi) The details in respect of appeals handled for the year 2021-22 (from 01.04.2021 to 31.12.2021) are given as under: -

Opening Balance as on 1st April, 2021	No. of grievances booked during 1st April, 2021 to 31 st December, 2021	Total	No. of grievances disposed of during 1st April, 2021 to 31 st December, 2021	Pending grievances as on 31 st December 2021
844	7763	8607	8390	217

7.2.5 VIP/PMO references

PG wing has been entrusted with the responsibility of handling of VIP/PMO references. On receipt of references through the higher offices, these are uploaded on CPGRAMS portal and forwarded to concerned Division of DoT for handling and disposal. PG wing monitors the progress on daily basis and update the status related to final reply submitted against these references. PG wing regularly holds meeting with the respective DoT divisions for timely disposal of VIP/PMO references. Besides meetings, various divisions of DoT are regularly reminded through letters/ emails about the pendency of VIP reference and are requested to dispose of these references in a time bound manner.

PG wing also forwards the guidelines for handling and disposal of VIP references as received from DARPG from time to time to all concerned divisions/wings of DoT. It has been stipulated in these guidelines that “the communications received from Members of Parliament should be attended to promptly and acknowledged within 15 days, followed by a reply within the next 15 days. In cases where delay is anticipated, an interim reply should be given indicating the possible date of reply.”

The details in respect of VIP & PMO references handled for the year 2021-22 (from 01st April, 2021 to 31st December 2021) are given as under: -

Reference	Opening Balance as on 1 st April, 2021	No. of references booked during 1 st April, 2021 to 31 st December, 2021	Total	No. of references disposed of during 1 st April, 2021 to 31 st December, 2021	Pending references as on 31 st December 2021
VIP	101	217	318	253	65
PMO	17	30	47	36	11

7.2.6 Efforts taken for faster disposal of Public Grievances/ VIP cases:

Regular review meetings are conducted by PG wing with Nodal officers of TSPs and concerned DoT units in order to ensure early disposal of pending grievances/ VIP cases. In these meetings the issues related to categorization of complaints, the disposal mechanism, quality of disposal, systemic issues etc. are deliberated and resolved. PG wing also provides the necessary support and handholding to the concerned agency in handling and disposal of the grievances/references. PG wing is also focusing on ensuring a robust grievance redressal mechanism in TSPs as per TRAI regulations.

PG Wing has adopted a mechanism of continuous persuasion by way of requesting the concerned Units (TSPs/ISPs/ DoT Units) to dispose of pending cases. Letters, emails and telephonic reminders are issued by different levels in PG wing to the Nodal and higher officers of TSPs/ISPs and DoT units at regular intervals. PG Wing has taken up the task of deep category-wise analysis of pending cases in order to help the concerned units/TSPs /ISPs/Divisions for faster disposal of pending cases and to bring systematic improvements in handling and disposal of grievances.

A Special Campaign from 2nd October to 31st October 2021 was launched in DoT to ensure expeditious disposal of Public Grievances, Appeals, reference from MPs and State Governments etc. During the campaign, 1786 PG grievances, 2143 Appeals and 37 MPs / State Governments references, which were booked upto 30th September 2021, were disposed of by PG Wing. PG Wing achieved 100% of targets of disposal of PG and Appeal cases during the special campaign.

7.3 CO-ORDINATION AND MONITORING OF COURT CASES OF DOT

Legal Cell:

- (i) Co-ordination and monitoring of Court Cases.

DEPARTMENT OF TELECOMMUNICATIONS

- (ii) Implementation of Legal Information Management and Briefing System (LIMBS) in DoT for online monitoring of Court Cases.
- (iii) Issuance of instructions regarding handling of Court Cases.
- (iv) Instruction relating to Court Cases received from Department of Legal Affairs, DoPT, Cabinet Secretariat, PMO etc. are circulated by Legal Cell to all wings/divisions in the Department for necessary action.
- (v) References received from Circles/Field Units/Division of DoT (HQ) relating to Court cases pending before various High Courts/Tribunals including Supreme Court of India- are examined and forwarded to concerned wing/divisions in the Department.
- (vi) Miscellaneous court receipts/notices/documents received from various HCs/Tribunals including Supreme Court of India-such matters are examined and forwarded to concerned wings/divisions in DoT.
- (vii) Coordinate meetings on pendency of court cases as and when required by higher authorities / offices.

During the current year, PG wing coordinated with all wings/divisions of DoT for updating the details of court cases in new version of LIMBS portal.

Status of Court Cases entered/updated as on 31.12.2021:

Total Number of Court Cases in LIMBS	:	4256
Supreme Court	:	194
High Courts	:	1251
Tribunal (CAT + TDSAT)	:	2668
Others	:	143

7.4 CITIZEN CHARTER

A Citizen Charter is a document which represents the commitment of the Organization towards standard, quality and time frame of service delivery, grievance redressal mechanism, transparency and accountability. The concept of Citizen Charter enshrines the trust between the Government as service provider and general public as customers.

Though not enforceable in a court of law, the Citizen Charter is intended to empower citizens so that they can demand committed standards of service and avail remedies in case of non-compliance by service provider organizations. The basic thrust of the Citizen Charter is to render citizen-centric public services by making them demand driven rather than supply driven.

DoT, with vision to provide secure, reliable, affordable and high quality converged telecommunications services anytime, anywhere for an accelerated and inclusive socio-economic development, has formulated its Citizen Charter listing main services/transactions being delivered by DoT for its customers.

PG wing being nodal unit for citizen charter, coordinates with other wings of DoT to get the services documented along with associated process, which includes details of documents required, applicable fees, if any, along with its mode of payment for availing each of the services. The Charter also specifies the standards of services delivery, the contact details of the units/agencies/centers responsible for delivery of these services, performance evaluation criteria in respect of delivered services, grievance redressal mechanism, etc.

7.5 TRAINING & CAPACITY BUILDING

Training & Capacity Building covers the work of deputation of telecom/IP&TAFS officers for domestic long term & short term trainings, coordination of training activities with DoPT and coordination of training activities of National Telecommunications Institute for Policy Research, Innovations & Training (NTIPRIT) and National Institute of Communication Finance (NICF), development of cadre training Plan including Mid-Career Training Program, In-service courses and customized training programs for ITS/IP&TAFS/Telecom officers. Steps are taken for several training and knowledge sharing initiatives such as identifying and developing pool of certified trainers on topics of interest from available pool of officers in DoT and knowledge management & sharing through workshops. Building synergy in the field of capacity building among various field units of DoT, PSUs/departments under DoT such as NICF, NTIPRIT, TEC, C-DOT, TCIL etc. by encouraging pooling of resources is also undertaken.

With the above objectives in mind and keeping in view the directions provided in the National Training Policy 2012, several important activities have been taken up in the year 2021-22 despite severe limitations caused as a result of Covid-19 pandemic as various proposed classroom trainings/workshops were postponed or cancelled during this year.

In all, 7 officers of the ITS cadre have been deputed to the following long term training programs of DoPT and Ministry of Defence in FY 2021-22:

- (i) 47th Advanced Professional Programme in Public Administration (APPPA) at IIPA New Delhi - 4 officers
- (ii) 13th One Year Diploma in Public Policy and Sustainable Development Programme (PP&SD) at TERI School of Advanced Studies New Delhi - 1 officer
- (iii) 62nd NDC Programme at National Defence College, New Delhi – 2 officers

In addition to above, with the objective that Officers are able to understand the key policy issues, fundamental principles and technical pillars of 5G needed to engage in and contribute towards proliferation of this revolutionary technology in various sectors across India along with driving the sector towards effective participation in the implementation of 5G, total of 36 ITS officers were deputed for a Semester long training programme on “5G- New Radio” conducted by IIT Madras.

Training Division, in coordination with IR wing of DoT HQ and ITU, nominated 8 ITS officers for 1st edition of Cyber Drill programme which aims to improve the cybersecurity readiness, protection, and incident response capabilities by conducting Cyberdrills at the national level.

A Competency Development Programme (CDP) has been approved for the officers of DoT. CDP is

envisaged to cater the need of Competency Development and Capacity Building to address the challenges of new technologies and service. The 10 domains identified under CDP are Network & Mobile Security, 5G Networks and Use Cases, Internet of Things (IoT), Artificial Intelligence, Spectrum Management, Machine Learning, Block Chain and Distributed Ledger Technology, Data Science & Big Data Analytics and Quantum Computing. In each of the above targeted domain a pool of 30 expert officers will be identified to undergo the 3 Phases of training. Nominations have been called for the participation in Network & Mobile Security domain.

7.5.1 National Telecommunications Institute for Policy Research, Innovations & Training

7.5.1.1 About the Institute:

The National Telecommunications Academy (NTA) was set up in the year 2010 by DoT as the technical training institute of the Department. Subsequently, in year 2011, the mandate of institute was expanded by bringing into the activities related to Policy Research and Innovations under its ambit and the institute was rechristened as the National Telecommunications Institute for Policy Research, Innovations & Training (NTIPRIT). Since then, NTIPRIT has grown from strength to strength and the institute is now a Central Training Institute (CTI) enlisted with Department of Personnel & Training. NTIPRIT is presently operating from the campus of Advanced Level Telecom Training Centre (ALTTC) at Ghaziabad, UP.

7.5.1.2 Summary of Training activities in Year 2021-22:

NTIPRIT has conducted induction training programs for Indian Telecommunications Service (ITS), Building Works Service (BWS) & Junior Telecom Officers (JTO) probationers, Capacity building programs for In-Service officers of DoT, promotion linked mandatory training for Group 'B' officers, Online-certification courses for officials of various Ministries/ Departments and courses for international participants under the aegis of Asian Pacific Tele-Community programs in the year 2021-22.

- a) Officer Trainees of ITS-2019 batch attended Induction training. The induction training of P&T BWS 2017 batch, ITS 2018, JTO-2018(RL) and 2019 batch was completed in F.Y. 2020-21.
- b) Promotion linked mandatory training for all the eligible Group B officers from JTO-JTO-2018(RL) and 2019 batch has been conducted.
- c) Thirty-Five (35) Webinars and In-Service courses and workshops till November, 2021 have been conducted and 7079 officers attended these courses.
- d) Three (3) Online Certification courses conducted during till November, 2021 and 189 participants attended these training courses.
- e) One international course for foreign participants have been conducted in October, 2021. 7 participants attended the training course.
- f) Two Mid-Career Training Program of Phase-II conducted. Total 49 participants attended the training program.

Overall summary of Training courses conducted:

S. No.	Type of Courses	Cumulative (from January 2021 to November 2021)		
		No. of Courses	No. of Trainees	Trainee Days
1.	Induction Course for ITS Group - A Officers	2	24	4530
2.	Induction Course for BWS Group - A Officers	1	2	124
3.	Induction Course for JTO Group - B Officers	1	14	1706
4.	Webinars	27	5331	5331
5.	In-Service courses/ workshops	8	429	1748
6.	Mid-Career Training Program	2	49	245
7.	International Training	1	7	35
8.	Certification Courses	3	189	6804
	Total			20,523

I. Induction Training:

(i) Completion of Induction Training of ITS 2018 batch:

15 Officer Trainees (OTs) of ITS 2018 batch successfully completed 104 weeks of Induction Training with NTIPRIT on 16th September, 2021 and have been posted at different units of DoT. In spite of these testing times of Covid pandemic, there was not a single day of postponement in the Induction Training Program of 104 weeks for these Trainees.



ITS-2018 batch Officer Trainees with NTIPRIT faculty

(ii) Ongoing Induction Training of ITS-2019 batch:

A new batch of 8 Officer Trainees of ITS 2019 batch joined NTIPRIT on 12th October 2020. Due to prevalent pandemic situation that time, the Officer Trainees were attached to different Licensed Service Areas of DoT to complete the "Attachment with LSA" module of Induction Training. The

DEPARTMENT OF TELECOMMUNICATIONS

Officer Trainees completed various inhouse and outsourced training modules during this period viz., Foundation course, Big-Data Certification courses, Advance course in cyber security, Finance for Non-finance officer, Officer procedure and Noting and Drafting etc. Post improvement in COVID-19 situation in Delhi NCR, these 8 officers joined NTIPRIT on 16th August 2021 for remaining part of Induction Training.



ITS-2019 batch Officer Trainees with NTIPRIT faculty

(iii) Completion of Induction Training of BWS 2017 batch:

Two Officers of BWS(Civil)-2017 were called to NTIPRIT to completed their remaining part of induction training. Officers completed the Induction Training on 26th March 2021.

(iv) Completion of Induction Training of JTO-2018(RL) and 2019 batch:

The Induction training of 14 officers of JTO 2018(RL) and 2019 batch started on 01st December 2020 in online mode, initially, due to prevalent pandemic situation. In view of improved pandemic situation, the Officer Trainees were called to NTIPRIT on 08th March 2021 to complete the rest of the modules of Induction Training in physical mode. All officer Trainees have successfully completed 30 weeks induction training with NTIPRIT on 25th June 2021 and posted to various DoT units.



JTO-2018(RL) and 2019 batches Officer Trainees with NTIPRIT faculty

II Webinars:

Summary of webinars conducted by NTIPRIT till November 2021 is as follows:

S/No	Webinar	Date	Trainee Days
1	Mobile device Security	04.01.2021	203
2	Introduction to IoT Technologies	13.01.2021	122
3	5G Security	20.01.2021	61
4	QoS in 5G	27.01.2021	190
5	5G Identities	10.02.2021	225
6	Zero Trust Network	17.02.2021	156
7	6G: Carving out Road for India	24.02.2021	218
8	Network Attacks	03.03.2021	121
9	Resilient Communication in Disasters	10.03.2021	73
10	Artificial Intelligence & Smarter Buildings	17.03.2021	126
11	Cryptography	24.03.2021	108
12	Protecting Privacy in Data-Driven Techno-Economic Ecosystem	31.03.2021	87
13	PM-Wani Implementation: Boost to Digital India	13.04.2021	190
14	NaVIC – Opportunities for Telecom Industry	28.04.2021	513
15	IP technologies and LAN Networking One day training	12.05.2021	162
16	DDO Functions	27.05.2021	168
17	Consent Management for Data Sharing	09.06.2021	257
18	Science of Yoga & Holistic Approach of Well Being	21.06.2021	327
19	Smart City Applications	23.06.2021	313
20	RTI Act: Important Provisions	14.07.2021	143
21	Smart Building- Technologies & Solutions	28.07.2021	222
22	Submarine Cable System- Policy, Planning & Implementation	11.08.2021	153
23	AI and Ethical Issues	25.08.2021	100
24	Open RAN-Opportunities for India	22.09.2021	560
25	Blockchain Technology Demystified	20.10.2021	159
26	Consumer Grievance related to Telecom Sector	27.10.2021	111
27	Digital Forensics Investigation	24.11.2021	263
	Total Trainee Days		5331

III Inservice courses and Workshops:

a) Preventive Vigilance:

NTIPRIT conducted a course on Preventive Vigilance from 02nd March to 3rd March, 2021. Total 23 participants from DoT, BSNL, NTIPRIT, ITI, and C-DoT attended the course

b) URL Blocking management:

NTIPRIT organized a two-days' workshop on 'URL Blocking Management' during 28th and 29th June 2021. Topics such as legal framework for removal of unlawful content, implementation aspects of section 69A, URL blocking architecture of ISPs, URL blocking solutions etc. were discussed. Group presentations on Challenges in Testing of URL blocking were delivered by various LSAs. In the workshop, the demonstration of newly developed portal for URL blocking was also given to the participants. The workshop was attended by 124 participants from different units of DoT.

c) Leadership Programme for Senior most DoT Officers:

NTIPRIT organized a "Leadership Programme for Senior-most DoT Officers" from 26th to 28th July 2021 to keep them abreast of the latest development/policies in the field of Spectrum Management, Regulation and Policies, USOF challenges, Security challenges etc. The Programme also provided a wide perspective of the global best practices in the field of ICT technology and management practices. The programme was inaugurated by Member (Services), DCC and was attended by 22 senior-most officers from different units of DoT.

d) Tools and tester for rolling out testing, QoS testing and EMF measurement:

NTIPRIT conducted a four-week training programme on 'Tools and Testers required for roll out testing, QoS testing, and EMF Measurement' for DoT officers w.e.f. 19th July 2021 to 13th August 2021. A total of 89 participants from LSA, DOT HQ, TEC, TRAI and WPC have been nominated for the training programme.

An online valedictory and certificate distribution ceremony of the four weeks online training programme was presided over by Member (Services). The certificates to 74 successful participants of this four-week online training programme was directly sent to their DigiLocker.

e) 5G and Cyber security for Joint Secretary and above level officers:

To create awareness among officers of various ministries and departments of Central Government about ways and means to leverage the power of 5G and to develop a culture of cyber security NTIPRIT organized a one-day training programme on '5G and Cyber Security' on 27th August 2021 for senior officers of the Government of India. The Training programme was inaugurated by Secretary, DoT. The Programme was attended by over 65 participants of the level of Joint Secretary and above level officers from more than 25 Central Government Ministries/Departments.

f) Role of Inquiry Officer/Presenting Officer:

A workshop on “Roles of Inquiry officer & Presenting Officer (IO/PO)” was organized for the officers of DoT & PSUs/Autonomous Body of DoT from 06th to 08th September 2021. The workshop covered a wide range of topics like CCS(Conduct) Rules & CCS (CCA) Rules, Constitutional Provisions and Principles of Natural Justice, Role & Function of IO, PO & DA and Stages of Hearing, Formulating Inquiry Report etc. It was attended by 27 participants from TCIL, DoT, ITI Ltd, MTNL, BSNL and CDoT.

g) Junior Telecom Officer (JTO) to Assistant Director(AD) Upgradation course:

NTIPRIT conducted the mandatory in-service course linked to promotion from JTO to AD for the 15 officers of JTO 2018 (RL) and 2019 batch. This 2-weeks course started on 18th October 2021. All the 15 officers nominated for the course successfully completed this course.

h) Telecom frauds and Role of Telecom Officers:

The Online workshop on “Telecom Frauds and role of Telecom officers” was conducted during 16th-17th November 2021. The Workshop was designed in consultation with LSA officers to best serve their needs. This online workshop was spread over two days, aimed to provide legal perspective on frauds, linkage with and expectations of Indian Cyber Crime Coordination Centre, discussion on best practices followed by Credit card and Wallet companies, Telecom Operator perspective on frauds and various initiatives taken by DoT such as Central Equipment Identity Register (CEI) and Telecom Analytics for Fraud management and Consumer Protection (TAF-COP) portals. Workshop also provided a platform for group discussion on few important cases dealt by LSAs and other topics of concern.

IV Mid-Career Training Program:

Mid-Career Training Program (MCTP) for ITS officers was started from July 2019. Total 10 batches of Technical component of MCTP, consisting of 260 officers, have been conducted so far, and in respect of “Administrative and Managerial component” of MCTP, approval has been obtained and RFP has been approved. This component and International component of MCTP is also expected to commence in the year 2022.

In view of the improved Covid pandemic situation and relaxations on imposed restrictions in various states, NTIPRIT resumed of Mid-Career Training Program (MCTP). Two Phase-II training programs for (Batch-VI and VII) was conducted during 13th September to 17th November 2021 and 22nd to - 26th November 2021, which were attended by 28 and 21 officers respectively.

Topics like National Digital Communication Policy, latest trends in Telecom, Licensing and Regulations, Global Developments and Challenges for policymakers, Mobile Technologies, Spectrum Allocation, Challenges in USOF, Network security, latest Technologies and their use cases, etc., were discussed during the training programme.



Participants of MCTP Phase-II Batch-VI with NTIPRIT



Group photograph of participants of MCTP Phase-II Batch-VII with NTIPRIT faculty

V International Training Courses:

NTIPRIT conducted a course on “IoT Technologies and Ecosystem” in online mode for international participants under the aegis of APT. The 5-days training programme commenced on 25th October 2021 was attended by 7 participants from 6 countries namely Bhutan, Sri Lanka, China, Myanmar, Mongolia and Thailand.

The Training covered topics like IoT Overview, Network Architecture & Design, Communication Technologies for IoT, LoRaWAN and Use Cases, One M2M Framework for Interoperability, IoT Security and Data Privacy, IoT Solution in Smart Cities, Regulatory Issues for IoT: Indian Scenario etc.

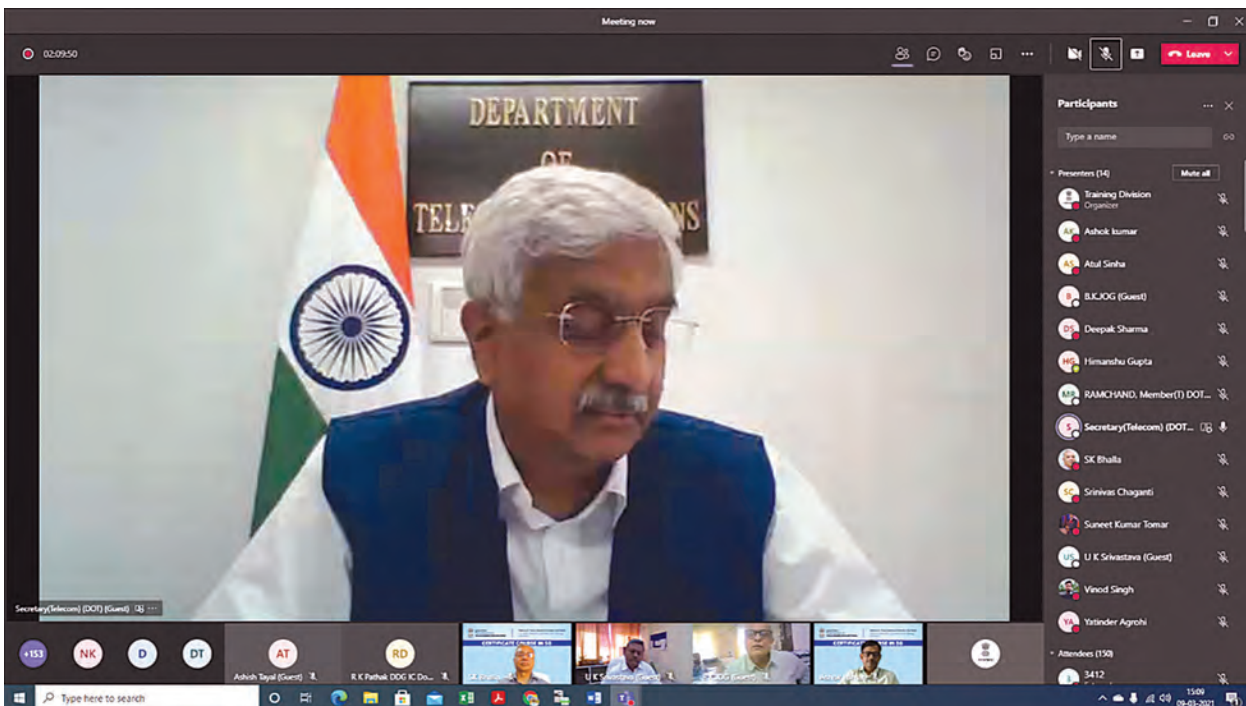
VI Certification Courses:

NTIPRIT has successfully conducted three (3) Certification courses in year 2021 and has launched fourth certification course on 06th December 2021.

a) 5G Certification Course (Batch-I and Batch-II):

In line with government's drive to promote e-learning, NTIPRIT has conducted first of its kind certification course of 36 hours (12 weeks with 3 sessions per week) on 5G to train and certify Officers of Government of India w.e.f. 09th March 2021. 60 officers of DoT attended this certification course. The program was customized for Information and Communication Technology Professionals and based 3GPP specifications. The program covered technology fundamentals, deployment scenarios, use cases, QoS and Security etc.

Due to increase in demand the second batch of the same course was launched on 06th September 2021. A total of 77 participants have enrolled in this certification course. Out of these nominations, besides the officers from DoT, its field units, attached offices & its PSUs, there were 15 officers from three Central Government Departments.



Inauguration of 5G certification course by Shri Anshu Prakash, the then Secretary, DoT

b) Certification Course on Network Security:

NTIPRIT has launched 36 hours (12 Weeks) Online Certification course on "Network Security" for DoT officials on the occasion of World Telecommunication and Information Society Day on 17th May 2021. Total 52 number of participants from various units of DoT have attended the certification course.

c) Certification Course on Telecom Forensics and Investigation:

NTIPRIT launched its fourth Certification course on “Telecom forensics and investigation” on 6th December, 2021. The course aims to equip the DoT officer with necessary knowledge and understanding in the domain of telecom forensics for better handling of the cases within the department and also facilitate investigations by law enforcement agencies. The course is of over 6 weeks duration and is being attended by 56 participants from different units of DoT. The successful candidates of these courses are handed over completion certificates through Digi-Locker.

7.5.1.3 Schedule for proposed training programs for rest of FY 2021-22

Start	End	Module	Duration / Day
6-Dec-21	10-Dec-21	Satellite Communication	1 Week
		6G: The Road Ahead	8 Dec
		Telecom forensics and Investigations (24Hours)	1st/ 6 weeks
13-Dec-21	17-Dec-21	Study visit to North-East	1 week
		Telecom forensics and Investigations (24Hours)	2nd/ 6 weeks
		Leadership development Program	15-17 Dec
20-Dec-21	24-Dec-21	Attachment with NCCS Bengaluru	1 week
		Green Telecom: Issues and Challenges	22 Dec
		Telecom forensics and Investigations (6 Sessions per week)	3rd/ 6 weeks
27-Dec-21	31-Dec-21	Attachment with BSNL/MTNL	1st/ 2 weeks
		Telecom forensics and Investigations (6 Sessions per week)	4th/ 6 weeks
03-Jan-21	07-Jan-21	Attachment with BSNL/MTNL	2nd / 2 weeks
		Resilient Communication for disaster Management	6,7 Jan
		Telecom forensics and Investigations (24Hours)	5th/ 6 Weeks
10-Jan-22	14-Jan-22	Concepts of Mobile Communications	1st / 3 Weeks
		Latest Development in Optical Backhaul for Cellular systems	12-Jan
		IMS/CMS at CDOT	10,11 Jan
		Telecom forensics and Investigations (24Hours)	6th/ 6 Weeks
		MCTP Phase-I	1st/ 2 Weeks
17-Jan-22	21-Jan-22	Concepts of Mobile Communications	2nd / 3 Weeks
		ISMS Internal Auditor at Delhi for TEC, DoT, Delhi LSA	20,21-Jan
		MCTP Phase-I	2nd/ 2 Weeks
24-Jan-22	28-Jan-22	Concepts of Mobile Communications	3rd / 3 Weeks
		Quantum Technology: Unlocking the future	27-Jan

31-Jan-22	4-Feb-22	Advance Mobile Communications	1st / 4 Weeks
7-Feb-22	11-Feb-22	Advance Mobile Communications	2nd / 4 Weeks
		Broadband Services over Satellite	9-Feb
		ISMS Internal Auditor at NTIPRIT for all India except TEC, DoT, Delhi LSA	7,8-Feb
14-Feb-22	18-Feb-22	Advance Mobile Communications	3rd / 4 Weeks
		IoT Technologies and use cases in Telecom	14, 15-Feb
21-Feb-22	25-Feb-22	Advance Mobile Communications	4th / 4 Weeks
		Machine Learning and Energy efficiency in buildings	23-Feb
		STQC- Lead Auditor Training	1 Week
28-Feb-22	4-Mar-22	Wireless Planning & Spectrum Management	1 week
		MCTP Phase-III	1 Week
7-Mar-22	11-Mar-22	Emerging Technologies in ICT Domain	1st/ 2 weeks
		Mobile Device and Social platform Security	10-Mar
		STQC- Lead Auditor Training	1 Week
14-Mar-22	18-Mar-22	Emerging Technologies in ICT Domain	2nd/ 2weeks
21-Mar-22	25-Mar-22	LSA Functions	1 week
28-Mar-22	1-Apr-22	Interoperability, Opportunities and Challenges in Cloud Computing	23-Mar
		IT security implementation program	21,22-Mar
		Licensing Functions	1 week

7.5.2 National Institute Of Communication Finance (NICF)

National Institute of Communication Finance, Ghitorni, New Delhi is an apex level training institute approved by DoPT as Central Training Institute. The Institute has been mandated to conduct the following training:

- Induction Training to Probationers of IP&TAFS Group-A & B officers and Group- C officials.
- In-Service course and workshop for capacity building.
- Preparing Training Materials and R & D in the domain areas of work.

7.5.2.1 Summary of activities in FY 2021-22

- (i) During the year 2021-2022 the physical progress of Setting up of Physical Infrastructure at NICF, Ghitorni is 93% whereas financial progress is 82.35%. In new campus of NICF Administrative Block, Academic/Faculty Block, Library, Sports Complex, Seminar and Conference Block, Faculty Club, Trainees Club, Community Hall, Retail Shops, Institutional Hostel, Quarters, Transit Accommodation and Utility Services Block are being constructed

DEPARTMENT OF TELECOMMUNICATIONS

from which Academic Block, Residential Quarters, Institutional Hostels Block are to be taken over from CPWD in first phase.

- (ii) During the training several interactions with Senior Government officers was arranged. Officer Trainees (OT) visited many apex level institutions of national importance viz. Office of Hon'ble CIC, Hon'ble Lokpal of India, DG National Archives, DG, NDRF etc.



Officer Trainees with Hon'ble Lokpal on 8th September 2021

- (iii) As per training calendar NICF conducted all workshops/capacity building training programmes in spite of covid and organised seminars on important topics of national importance. Few important sessions are as follows:

- National Seminar on Telecom Ecosystem: Challenges & Opportunities: This seminar was a new initiative of NICF involving all stake holders of telecom eco-system in the country. This seminar had the participation of senior officers, field officers, senior officers of Office of CGCA and DoT HQs, all middle level officer as MCT participants and Officer Trainees. This seminar received active participants from Telecom Industry, Bankers, Regulators (TRAI & IBBI, CCI etc.), PSUs, academia etc. It was inaugurated by Sh. P.K. Sinha, Member (Finance) and panel discussions were held on the following topics: -

1. Telecom Policy paradigm looking forward
2. Regulatory challenges
3. Spectrum Management
4. Rural Connectivity
5. Financing Telecom Sector in India



Member (Finance) with participants of National Seminar on Telecom Ecosystem on 27th September.2021

- Digital Communication Infrastructure in National Infrastructure Pipeline (NIP) for India @2047" and National Monetization Pipeline (NMP). The Seminars were inaugurated by Secretary, DoT and Additional Secretary, DIPAM respectively and participants included all the circle heads and Officer Trainees of IP&TAFS Batch 2019 & 2020 along with other stakeholders.
- (iv) During the FY 2021-2022 (till November 2021), NICF conducted many training programmes like Mid-career training program for senior IP&TAFS officers of 2012 to 2015 batches. Induction training for 3rd batch of Sr.AO/AO, Induction programme for 11th, 12th and 13th batch AOs, Skill development programme for SAs/JAs Group "C" officials, Rajbhasha training was conducted for the probationers, etc.
- (v) During the year 2021-2022 various celebrations were done at NICF including Azadi ka Amrit Mohotsav Jan Utsav Week (24th to 31th October 2021), Vigilance Awareness Week (25th October to 01st November 2021), Constitution Day (26th November 2021), World Environment Day, Independence Day, Yoga Day, Hindi Pakhwada, Swachhta Diwas, Sports Day etc.



Hindi Pakhwada at NICF

- (vi) During the year 2021-2022 NICF conducted various workshops like Workshop on PFMS for two days on 12th & 13th April 2021, Workshop on finance advice and IFD conducted on 29th to 30th June 2021 for in service officers to equip them with the latest developments in the field, Workshop on SARAS and License fees for two days for 17th - 18th June 2021, Workshop on Internal Audit (IA), Vigilance, etc.



Workshop on IA was inaugurated by CGCA

- (vii) During the year 2021-2022 various attachment of OTs were done like IIPA attachment in Administration and Management module, OTs were attached for two weeks from 23rd August 2021 to 03rd September 2021 and for Public, Administration, Governance & Policy they were attached from 23rd August 2021 to 03rd September 2021, RAKNPA attachment for the week-long training program on Banking and Insurance, IIM Indore for management input, ArunJaitly National Institute of Financial Management (AJNIFM) for professional training of probationers.
- (viii) In the remaining months of the year 2021-2022 NICF will conduct various Workshops on Spectrum Management and Gender Sensitization in December 2021, Workshop on SAMPANN, FDI & Financial Market and USOF & GST in January 2022, Workshop on NPS & SDBS, Workshop on office procedure, noting & drafting, Office Management and Workshop on Insolvency and Bankruptcy Code (IBC) in February 2022 and Workshop on New Technology including Workshop on 5G, Workshop on APAR Writing, Workshop on GST & e-filing of Returns and Workshop on Establishment and Preparation of Roster in March 2022.
- (ix) In the year 2021-2022 NICF will also conduct various Seminars specially for senior officers calling all the stakeholders for Seminar on Spectrum auction and practices worldwide in January 2022, Seminar on Election Observer and Expenditure monitoring of electioneering in February 2022 and Seminar on Postal Ecosystem Challenges and Opportunities in March 2022.

- (x) NICF started physical trainings of IP&TAFS Officer Trainees of 2020 Batch w.e.f. 21st June 2021 with the celebration of International Yoga Day following all the Covid guidelines in hybrid mode in collaboration with Morarji Desai Institute of Yoga.



Officer Trainees doing Yoga at NICF

7.5.2.1 Brief summary of Training courses conducted

S.No.	Training/ Workshop/ Seminar	Batch
1	Investment and FDI	Probationers (2019 Batch)
2	Insurance and Banking Module (including IBC and Related Law)	Probationer (2019 Batch)
3	New Technology (NT) Module on IOT/M2M/ 5G/IA/Block Chain Technology, DLT and on Fintech etc.	Probationers (2019 Batch)
4	Professional Module (PH-I) & (PH-II) PTC	In-service training
5	International Attachment	Probationers (2020 Batch)
6	Induction Training of AAOs	11 th , 12 th , 13 th Batch
7	Workshop on PFMS	In-service training
8	Workshop on Finance Advise and Role of IFD	In-service training
9	Field Attachment: DoT HQ/DoP HQ/CCA/DA(P)s	Probationers (2019 Batch)
10	Administration and Management Module (Including Rajbhasha) Public Administration, Governance & Policy, IIMs for management Input	Probationers (2020 Batch)
11	Orientation Module	Probationers (2020 Batch)
12	Capacity Building Programme on Internal Audit	In-service training

13	Workshop on SARAS and License Fee	In-service training
14	Workshop on Disciplinary proceedings- Roles and Responsibilities of IO & PO	In-service training
15	Workshop on Economical Growth- Telecom Sector	In-service training
16	Online skill, development training programme for SA/JA	In-service training
17	MCT-I	In-service training
18	Seminar on Telecom Ecosystem: Opportunities and Challenges	In-service training
19	Telecom Module OJT	Probationers (2020 Batch)
20	Postal Module- Classroom Training	Probationers (2020 Batch)
21	Workshop on USOF	In-service training
22	Workshop on GeM	In-service training
23	Investment and FDI Module	Probationers 2020 Batch

7.6 STAFF WELFARE AND SPORTS

The Welfare Cell under General Administration Branch undertakes various activities for the welfare of staff which, inter-alia, include grant of Scholarship, Book Award and financial incentives to the meritorious school / college going children of the employees. Besides this, conveyance allowance / hostel subsidy is also granted to the differently-abled children of the employees. Ex-Gratia financial assistance is also provided to the employees and their family in distress. In order to encourage the spirit of adventure and foster brotherhood amongst the employees, Welfare Cell also organizes excursions / recreation tours, for which subsidy is provided from the Welfare Fund.

Book Awards totalling Rs. 17,63,700/- were distributed to the wards of DoT employees, out of which Rs. 1,47,700/- was sanctioned under Girl Child relaxation and Rs. 83,700/- was sanctioned under SC, ST, & OBC relaxation.

Scholarship Awards of Rs. 17,00,000/- were distributed to the wards of DoT Employees, out of which Rs. 94,000/- was sanctioned under Girl Child relaxation and Rs. 50,200/- was sanctioned under SC, ST & OBC relaxation.

Incentive Awards of Rs. 2,76,500/- were distributed to wards of DoT employees, out of which Rs. 73000/- was awarded to mentally/ physically-challenged wards of DoT employees as scholarship and conveyance allowance/ hostel subsidy.

7.7 SWACHHTA MISSION

7.7.1 Swachhta Pakhwada was observed in the Department during the period from 16th to 30th November, 2021 as directed by the Cabinet Secretariat. DoT drew up an Action Plan for observing Swachhta Pakhwada in a befitting manner and for focused attention towards cleanliness. The activities started with administering of Swachhta Pledge. Further, special cleanliness drive has been carried out throughout the Pakhwada period and this will continue throughout the year. During the Pakhwada period, several unserviceable items have been removed on request of officers/

officials/sections of DoT. The tender for the sale of furniture scrap has been placed on MSTC. Apart from this, segregation of the waste material has also been done.



Swachhta Pledge administered by Special Secretary (DoT) to Officers of DoT



Through cleaning carried out in and outside premises of Sanchar Bhawan, New Delhi

7.7.2 Special Campaign from 02nd to 31st October 2021 to ensure better cleanliness as well as disposal of redundant scrap material and obsolete items

7.7.2.1 A Special Campaign on pending matters inclusive of cleanliness, expeditious disposal of MP references, Parliamentary Assurances, Inter-Ministerial Consultation References, Public Grievances, State Government References, Easing of Rules/processes and creation of free space by way of disposal of scrap material as well as weeding of files was undertaken during the period. The campaign was undertaken as per the instructions of Department of Administrative Reforms and Public Grievances. This campaign was undertaken not only in DoT HQ but also in all PSUs/ Attached / Subordinate Offices/Organizations under the control of DoT.

7.7.2.2 During the above period, a large number of physical files were reviewed and subsequently substantial numbers of files were weeded out. Further, in DoT HQ, substantial quantity of scrap material was disposed off through MSTC. The disposal of scrap generated revenue of Rs. 8,79,000/-.

7.7.2.3 During the period, four rules / processes were simplified towards reducing compliance burden.

7.7.2.4 A unique feature of the cleanliness campaign by many of the Field Units was the community / public areas were also cleaned by the field office employees during the drive.

7.7.2.5 Several best practices also came out during the campaign as given below –

- Citizen-centric Digitization initiative taken by DoT in authorizing online filling of Customer Application Forms (CAFs) has resulted not only in reducing compliance burden and faster processing but is estimated to save around 3.5 crore sheets of paper thus positively impacting the environment as a significant ‘green initiative’.
- A fast-charging point for Electrical Vehicles has been provided in DoT campus.
- New practices of deep cleaning/ sanitization of premises every week, provision of contactless hand sanitizers on each floor of the 14-storeyed building and comprehensive monitoring system for washroom cleaning have been started.
- DoT has cut down manual intervention, reduced levels of processing and supported Ease of Access to General Public and Businesses through e-governance initiatives through portals like Saral Sanchar, Tarang Sanchar, Sampann and PM-Wani

7.7.2.6 Cleanliness Drive at DoT HQ (Sanchar Bhawan), New Delhi

Before and after view

Before



After



Improved Interior**7.8 OFFICIAL LANGUAGE**

During the year 2021-22 (April, 2021 to December, 2021), following important works relating to the progressive use of Hindi were undertaken by the Official Language Division: -

- (i) Implementation of the Official Language Policy and the Annual Programme of the Govt. Of India: All Sections, Attached and Subordinate offices and Public Sector Undertakings under the administrative control of the Department were advised to comply with the provisions of the Official Language Act, Rules and instructions issued there under, for achieving the targets fixed by the Ministry of Home Affairs (MHA), Department of Official Language (DOL), in their Annual Programme for the year 2021-22. Various check-points were also devised for the effective implementation of the Official Language Policy of the Union in this regard. Quarterly Progress Reports regarding progressive use of Hindi in the Department, its Attached and Subordinate units and the Public Sector Undertakings under its administrative control, were reviewed and necessary instructions issued for taking corrective measures. The Section 3(3) of the Official Languages Act, 1963 was complied with during the period under review.
- (ii) Hindi Salahakar Samiti (Hindi Advisory Committee): In pursuance of the guidelines issued by the MHA, DOL from time to time, there is a Hindi Salahakar Samiti of the Ministry of Communications, DoT. Consequent upon the expiry of its tenure of three years on 14th September, 2018, reconstitution of the Hindi Salahakar Samiti of the DoT is in process and is expected to be completed very soon. As prescribed, functions of the Samiti will be, as before, to render advice to the Government in regard to the implementation of the provisions relating to Official Language contained in the Constitution, Official Languages Act and Rules framed there under, decisions of the Kendriya Hindi Samiti, implementation of the instructions issued by the Department of Official Language to improve and strengthen progressive use of Hindi in the DoT and its Attached and Subordinate offices, as well as Undertakings. During the last tenure of three years of the committee, its two meetings were held on 27th August 2016 and 29th May 2018 in Bengaluru and Raipur (Chhattisgarh) respectively under the chairmanship of the then Hon'ble Minister of State of Communications (Independent Charge).

- (iii) Monitoring and Inspection: The Official Language Division acts as a co-ordinator for Official Language inspections of the various offices/undertakings/organizations under the control of the DoT, conducted by the Second Sub-Committee of the Committee of Parliament on Official Language (CPOL). In these inspections, the Ministry/Department is represented by a Joint Secretary level officer {Deputy Director General (Coordination and Administration)} and representative(s) of the Official Language Division.
- (iv) Official language inspections of offices located in Delhi and outside, by the Ministry: In order to assess the status of the implementation of the Official Language Policy, it is mandatory for the Ministry/Department to conduct official language inspections of at least 25% of its undertakings/offices/units etc., as per targets prescribed by the MHA, DOL, in their Annual Programme 2021-22. During the period under report, 13 such inspections were conducted, maintaining COVID-19 protocol. During inspections of this Department and offices under its control, the Second Sub-committee of the Committee of Parliament on Official Language (CPOL), also emphasised the mandatory requirement of official language inspections by the Ministry/Department of the offices/undertakings under its control, as per the targets fixed by the Department of Official Language.
- (v) Training in Hindi language, Hindi stenography and Hindi typewriting: Official Language Division also processes nominations of officials for various training courses conducted under Hindi Teaching Scheme by the Central Hindi Training Institute DOL, MHA. During the period under report, no officials were nominated by this Division for training in such courses due to Covid-19 pandemic. However, since the Central Hindi Training Institute has introduced on line training programmes, process for nominating officials for the same is in progress.
- (vi) Meetings of the Official Language Implementation Committee: Quarterly meetings of the Official Language Implementation Committee (OLIC) of the Department are held at regular intervals, wherein the progress relating to the use of Hindi in official work in the department, is reviewed and, based on discussions therein, effective strategy is worked out for the improvement of progressive use of Hindi and implementation of the official language policy. During this period, these meetings could not be held on regular basis due to the Corona pandemic. However, efforts are being made to hold these meetings on joint basis to clear the backlog.
- (vii) Celebration of 'Hindi Pakhwara': In consonance with effective implementation of the Official Language Policy and creating awareness of using Hindi in day-to-day official work, 'Hindi Pakhwara' was organized from 14th to 28th September 2021 in the Department. For the purpose of the promotion of Official Language in the Department, 09 Hindi competitions were held, maintaining proper physical distancing in view of Covid-19 pandemic. 206 officers/officials participated in these competitions. Provision of 13 cash prizes (one first prize, one second prize, one third prize and ten consolation prizes) each for all the competitions had been made.
- (viii) Translation Activities: During the period under report, apart from the regular translation of routine material, a number of important and time-bound translation of material relating to Standing Committee on Demand for Grants/Parliamentary Assurances, Action Taken Notes,

Cabinet Notes, RTI matters, Parliament Questions, Delay Statements, Monthly Summaries, documents specified in Section 3 (3) of the Official Languages Act, 1963 and other parliamentary activities was carried out.

- (ix) Notifying Offices under Rule 10(4) of the Official Languages Rule, 1976: The Official Language Division also processes the proposals received from corporate offices of BSNL, MTNL etc. to notify their offices under various telecom circles across the country, under Rule 10(4) of the Official Languages (use for official purposes of the Union) Rules, 1976, where 80% and above officials have acquired working knowledge of Hindi.



Mobile tower at high altitude





Chapter 8

Vigilance Wing

8.1 SCOPE AND FUNCTIONS OF VIGILANCE WING

Vigilance Wing of DoT is entrusted with Vigilance activities including handling of Vigilance/Disciplinary cases in respect of officers/officials posted in DoT and its sub-ordinate offices/ DoT officers deputed to other Departments & Public Sector Undertakings (PSUs)/Board level officers in PSUs under DoT namely, Bharat Sanchar Nigam Limited (BSNL), Mahanagar Telephone Nigam Limited (MTNL), Indian Telephone Industries (ITI) Limited, Telecommunications Consultants India Limited (TCIL), Bharat Broadband Network Limited (BBNL) and Autonomous body - Centre for Development of Telematics (C-DOT).

8.2 THE VIGILANCE WING, INTER-ALIA, IS RESPONSIBLE FOR THE FOLLOWING:

- (i) Scrutiny of complaints having Vigilance angle.
- (ii) Investigation/inquiry of complaints having vigilance angle.
- (iii) Examination of the Self-contained notes/ CBI reports and its follow up.
- (iv) Seeking advice from CVC on the cases having Vigilance angle.
- (v) Extend assistance / liaison with CBI /Lokpal/ Police & other agencies in the enquiry / investigation of cases.
- (vi) Processing of Prosecution sanction in corruption cases.
- (vii) Issues concerning suspension and other departmental actions against the employees concerned in vigilance matters.
- (viii) Processing the departmental disciplinary proceedings arising out of vigilance matters, in respect of all employees of DoT including retired employees.
- (ix) Coordination with CVC, UPSC, DoPT and other agencies on vigilance matters.
- (x) Monitoring the implementation of final orders issued in Vigilance cases.
- (xi) Ratification of major penalties in respect of absorbed employees of BSNL & MTNL.
- (xii) Processing the appeal, review and revision petitions in departmental proceedings, arising out of vigilance matters.
- (xiii) Issue of Vigilance clearance.
- (xiv) Review exercise under FR-56(j) by respective Cadre Controlling Authorities in the Department and under the similar provisions in the PSUs of the Department.

- (xv) Preparation and maintenance of Agreed list, Officers of Doubtful Integrity (ODI) list etc., and necessary action thereon.
- (xvi) Conduct of periodic/surprise inspections/reviews/audits and scrutiny of Audit reports.
- (xvii) Suggesting systemic /procedural improvements for ensuring transparency and mitigating scope for corruption or malpractices.
- (xviii) Identification of sensitive areas and monitoring implementation of rotational transfer policy.
- (xix) Scrutiny of 'Annual Property Returns' & 'Intimation of acquisition/disposal of property'.
- (xx) Coordination for organizing training /workshop on vigilance matters and observance of 'Vigilance Awareness Week'.
- (xxi) To review the existing arrangements for Vigilance work in the Department, Public Sector undertakings/ autonomous bodies/attached offices/subordinate offices under administrative control of the Department to assess, if it is adequate for ensuring expeditious and effective disposal of vigilance matters.
- (xxii) Appointment of Chief Vigilance Officers in the Public Sector undertakings/ autonomous bodies/attached offices/subordinate offices under administrative control of the Department.
- (xxiii) Updating of relevant data on Probity portal & System for Online Vigilance Clearance Enquiries (SOLVE) portal.

To carry out such functions, a full-time Chief Vigilance Officer (CVO) of the rank of Joint Secretary heads the Vigilance Wing in DoT. Directors/Deputy Secretary and other supporting staff assists the CVO. He functions as the nodal point in the Vigilance set-up in DoT.

8.3 VIGILANCE ACTIVITIES [DURING THE PERIOD FROM JANUARY - 2021 TO DECEMBER – 2021]

8.3.1 Complaints and disciplinary actions

Vigilance Wing of DoT received the complaints from various sources like President's Secretariat / Prime Minister's Office / CVC / CBI / Members of Parliament/ General Public etc. These complaints are then scrutinized and taken up for investigation to identify the delinquent officers/officials and fix responsibility along with the suggestion for systemic improvements, if any, required. During the period:

- (i) 284 complaints were handled.
- (ii) 11 officers / officials were awarded/ exonerated major & minor penalties.
- (iii) Proceeding was dropped in 1 case, 1 official was dismissed from service, 3 officials were censured, 4 officials' pay was reduced, 1 official was imposed 25% & 1 official 10% cut in pension.

- (iv) 27 cases for imposition of penalty received from BSNL/MTNL were ratified.
- (v) 12 appeals against punishment orders were decided.
- (vi) Prosecution sanction was issued against 1 officer.
- (vii) 3 Charge sheets were issued during the period.

8.3.2 Grievance- PG Portal

27 Grievance petitions received through Centralized Public Grievance Redress and Monitoring System (CPGRAMS) from various sources viz. President's Secretariat, Prime Minister Office (PMO), Department of Administrative Reforms and Public Grievances (DARPG), Directorate of Public Grievances (DPG) in Cabinet Secretariat and Department of Pensions & Pensioners' Welfare, were disposed.

8.3.3 Training & Workshop

- Two days training on 'Preventive Vigilance' was organised at National Telecommunications Institute for Policy Research, Innovation & Training (NTIPRIT) during March 2021.
- As a part of induction training of JTOs 2018 (RL) and 2019 Batch, Officer Trainees were attached to Vigilance wing for one-day orientation cum training.
- Three days training programme on 'Role of IOs/ POs' was organised at NTIPRIT during Sept' 2021.
- Three days online training programme for 'IOs/ POs' was organised by Central Academy for Police Training (C.A.P.T), Bhopal in coordination with CVC during Oct' 2021.
- Two days online course titled 'Advance course on Preventive Vigilance', organised by National Productivity Council, (under Ministry of Commerce and Industry) during July 2021 was attended by four officers of Vigilance Wing.

8.3.4 Vigilance Clearance (VC)

VC is an important activity of the Vigilance Wing as VC is required at the time of promotion, retirement, obtaining passports, visiting abroad and deputation to other Organizations/Departments etc. During the period, Vigilance Clearances, including CVC clearances, were issued to 3429 officers/officials for various purposes.

At present, VC requests are being processed online and VC are issued online directly to the concerned requesting Authorities. This has greatly reduced the paper work and time in furnishing VC. A Sanchar VHR (Vigilance and Human Resource) portal was introduced to issue Vigilance Clearances and to generate 12- point proforma for processing cases for CVC Clearance in respect of empanelment of Joint Secretary & above level officers and Board Level appointments in PSUs.

8.3.5 Consultation with Statutory/Constitutional bodies

8.3.5.1 Consultation with Central Vigilance Commission (CVC)

CVC is the apex vigilance institution having jurisdiction over all Ministries/Departments/PSUs etc. for vigilance related matters. Action against Government officers/officials is initiated in consultation with the CVC. The Vigilance Wing of DoT coordinates with the CVC for vigilance related matters. First stage CVC advice was sought in respect of eleven cases and Second stage advice was sought in respect of three officers.

8.3.5.2 Consultation with the Union Public Service Commission (UPSC)

Consultation is required with the UPSC in cases where the Disciplinary Authority is the Hon'ble President of India or disciplinary proceedings under Rule 9 of CCS (Pension) Rules, 1972. In addition, UPSC is also required to be consulted where the appellate Authority is Hon'ble President of India and in Review cases where modification in penalty is proposed. During the period, five cases were referred to UPSC for advice.

8.3.5.3 Consultation with the Department of Personnel & Training (DoPT)

Consultation with the DoPT is required in all disciplinary cases where there is a disagreement between Disciplinary Authority (DA) and the UPSC/CVC. DoPT is also consulted in cases where UPSC/CVC directs the DA to consult with the DoPT. During the period, eight cases were referred to DoPT.

8.3.6 Miscellaneous activities

- (i) Court Cases: Some court cases against the Department arise out of disciplinary matters and such cases are handled by Vigilance wing. Total 168 court cases were handled by the Vigilance wing during the year, out of which 9 cases pertaining to Disciplinary matters was settled and 159 cases are presently pending in various courts/ tribunals.
- (ii) RTI Applications: Timely supply of information to citizens is very important and this aspect is given due importance in Vigilance Wing. During the period, 70 RTI applications have been disposed of by the CPIOs and 8 appeal cases have been disposed of by First Appellate Authority in Vigilance Wing.

8.4 VIGILANCE AWARENESS WEEK

Vigilance Awareness Week was observed in the Department from 26th October, 2021 to 1st November, 2021. The theme for the week was "Independent India @ 75: Self Reliance with Integrity; स्वतंत्र भारत @ 75: सत्यनिष्ठा से आत्मनिर्भरता. The Week started with Integrity Pledge which was administered by Special Secretary, DoT in the Conference Hall, Sanchar Bhawan, New Delhi. The Pledge taking ceremony was also made available through video conference to enable officers to join the pledge from their respective offices, in view of Covid-19 precautions. Further, to increase awareness against corruption and Public Interest Disclosure and Protection of Informers (PIDPI), signature campaign to support the resolution/theme of this year's Vigilance Awareness Week was also organized along with various other events/ competitions like slogan/ message writing, mini skit, poetry writing, debate,

poster making etc. All the events were organized following the extant COVID-19 guidelines and taking due precautions.



Special Secretary, DoT administered the Integrity Pledge in DoT HQ



Signature campaign to support this year's theme

DEPARTMENT OF TELECOMMUNICATIONS

The week concluded with prize distribution function held on 1st November, 2021 at DoT HQ, Sanchar Bhawan, New Delhi, Member (Services) and CVO, DoT distributed certificates, mementos and cash prizes to the winners of the competitions held during the week.



Prize distribution Function in DoT HQ

Vigilance Awareness Week - 2021 was also observed in various field units of the DoT spread across the country. This year five cities viz. Ahmedabad, Lucknow, Shillong, Chandigarh and Hyderabad representing 5 different zones were identified to conduct various activities involving public, schools, colleges, etc. during the week.



Padyatra along the Sabarmati River Front, Ahmedabad



Vigilance Awareness Cycle Rally in Hyderabad



5 Km Vigilance Awareness City Run, Shillong

- (i) Events like poster making competition among students of IIT Gandhinagar, NHL Medical College Ahmedabad, Gujarat Law Society University were organized at Ahmedabad and Gandhinagar, along with support of TSPs. A talk on 'Vigilance & Ethics in Public Life' by Principal Accountant General of Gujarat and Padyatra along the Sabarmati River Front, Telecom awareness quiz were also organized at Ahmedabad.

DEPARTMENT OF TELECOMMUNICATIONS

- (ii) Pension Awareness Mela, essay writing, quiz competition, Vigilance Awareness Padyatra at Lohia Park, Awareness in Gram Sabhas (namely in Vill. Rampur, Sonebhadra, Vill. Akarra Rasoolpur, Shajahanpur, Vill. Chiraigaon, Varanasi etc.) were organized at Lucknow, UP (East) Region.



Vigilance Awareness Padyatra at Lohia Park, Lucknow

- (iii) Essay writing competition, distribution of pamphlets, awareness in Gram Sabhas and a 5 km Vigilance awareness city run were organized in Shillong, Meghalaya.
- (iv) Telecom Awareness Mela, talk by eminent speakers, poster making competition, Cycle Rally were organized at Chandigarh.
- (v) Video conference on Telecom frauds, talk on 'Vigilance and Ethics in Public life' by eminent speakers, quiz competition, Cycle Rally were organized in Hyderabad.

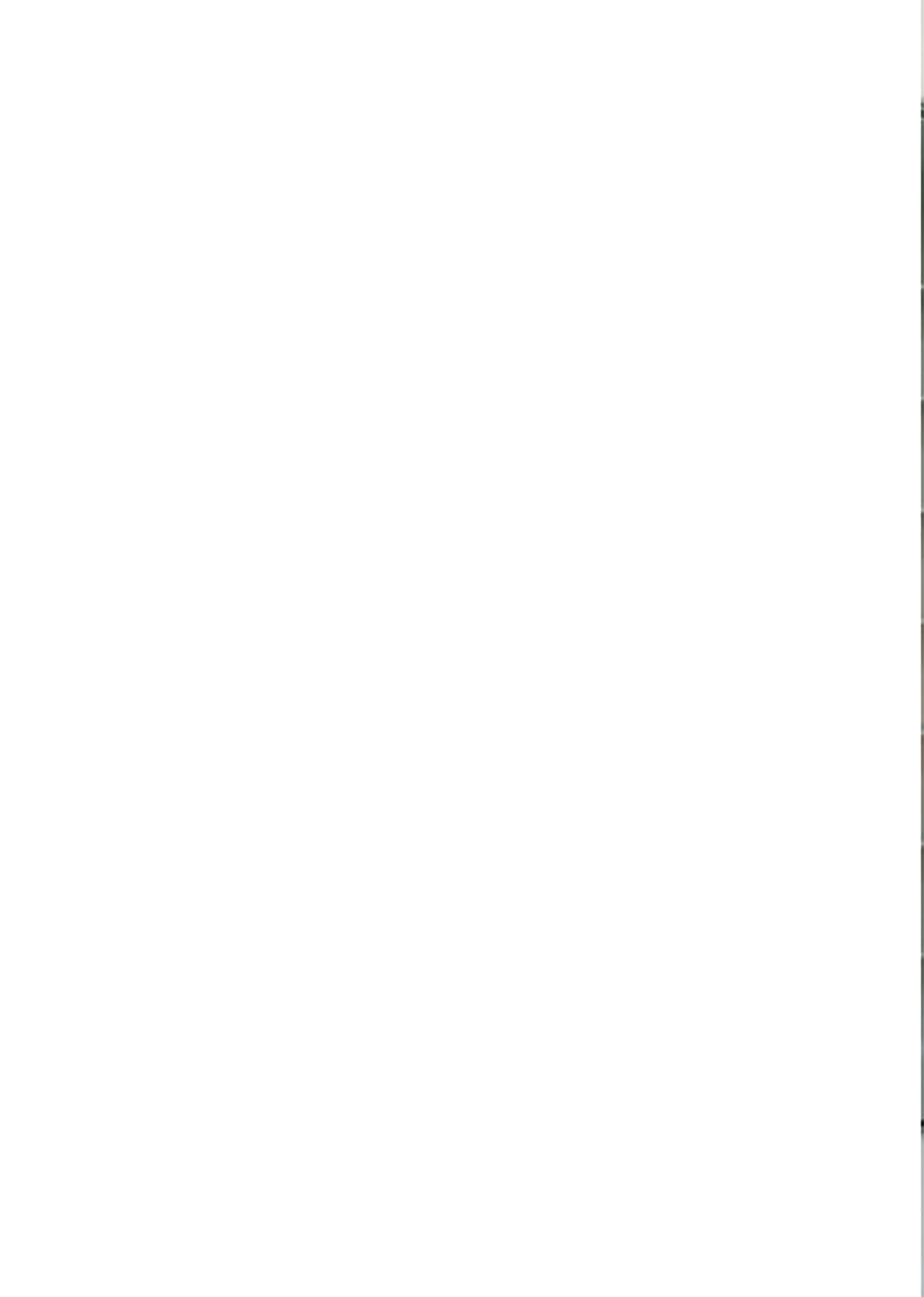
8.5 PREVENTIVE VIGILANCE

Following activities are being coordinated and monitored under 'Review of mechanism to ensure probity amongst Government Servants' :-

- (i) Review exercise under FR-56(j) by respective Cadre Controlling Authorities in the Department and under similar provisions in the PSUs.
- (ii) Timely disposal of prosecution sanctions as well as disciplinary cases.
- (iii) Regular meetings are conducted with CVOs of PSUs/Sub-ordinate office/ Autonomous body under DoT in order to ensure early disposal of pending complaints and Vigilance matters.
- (iv) The Vigilance profiles of Board Level Officers of the CPSEs namely BSNL, MTNL, TCIL, ITI, BBNL & C-DoT are being regularly updated on monthly basis on SOLVE Portal maintained by the DOPT.

- (v) Vigilance inspections were carried out at 2 locations namely Chennai and Lucknow where offices of CCA, LSA and WMO were inspected.
- (vi) 1263 Annual Property Returns of the Officers of ITS, IP&TAFS and IRRS cadre were scrutinized.





Building Distribution Box cum Optical Terminal Box





CHAPTER 9

WELFARE OF WEAKER SECTION, DIFFERENTLY ABLED PERSONS AND WOMEN

9.1 WELFARE OF DIFFERENTLY ABLED PERSONS AND SC/ ST/ OBC

9.1. Introduction

Information and Communication Technologies (ICT) have the potential for making significant improvements in the lives of persons with disabilities, allowing them to enhance their social, cultural, political and economic integration in communities by enlarging the scope of activities available to them. Accessible ICT can level the playing field for persons with disabilities across life domains including education, employment, e-governance and civic participation, financial inclusion, etc.

In terms of the mandate contained in the Section 40 of the Rights of Persons with Disabilities Act (RPwD Act), 2016, Department of Telecommunications (DoT) is endeavoring to create an accessible ICT ecosystem by pursuing accessibility issues in ICT sector with the concerned stakeholders.

9.1.1 Department of Telecommunications (DoT)

For improving accessibility in telecom services, DoT has issued instructions to Telecom Service Providers (TSPs) regarding provisioning of telecom services to Persons with Disabilities (PwDs).

Further in pursuance to RPwD Act, 2016 mandate to make all public centric buildings accessible by June, 2022, this Department had been regularly endorsing DEPwD guidelines to its attached organizations/ PSUs for identification and retrofitting of government buildings as per “Harmonized Guidelines and Space Standards for Barrier Free Built Environment for PwDs and Elderly Persons, 2016” as issued by Ministry of Housing and Urban Affairs. Recently, the Department has evolved an ad-hoc accessibility audit procedure regarding post retrofitment exercise, and issued to all concerned stakeholders to ensure technical correctness and compliance to standards.

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021) in Department of Telecommunications										
Group	Total Employee	SCs	STs	OBCs	Others	EWS	VH	HH	OH	Other forms of disability
A	2144	390	138	283	1332	1	2	1	12	—
B	1437	207	93	65	1072	—	—	—	13	—
C	1089	147	77	213	652	—	7	1	7	—
Total	4670	744	308	561	3056	1	9	2	32	—

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021) in										
Wireless Monitoring Organisation										
Group	Total Employee	SCs	STs	OBCs	Others	EWS	VH	HH	OH	Other forms of disability
A	1	—	—	—	1	—	—	—	—	—
B	6	1	—	1	4	—	—	—	—	—
C	123	41	14	29	46	—	—	—	—	—
Total	137	42	14	30	51	—	—	—	—	—

9.1.2 Centre for Development of Telematics (C-DoT)

For recruitment of Differently Abled Persons and candidates belonging to SC/ST/OBC category, C-DoT follows government rules providing reservation in jobs in C-DoT. For the welfare of persons belonging to differently abled and SC/ST/OBC employees, C-DoT has a system in place to look and address any attendant problems/complaints arising thereof. Two officers have been appointed as Nodal Officers for SC/ST Cell & OBC Cell respectively and a Liaison Officer for differently abled persons.

Benefits for Differently Abled Persons:

C-DoT campus at Delhi has been constructed in such a manner so as to ensure barrier free environment for the persons with disabilities. The main entrance/exit can be approached through a ramp together with stepped entry. Even elevators connecting the various working areas have been installed in a way to facilitate them to move around freely from one wing to another.

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021)										
Group	Total Employee	SCs	STs	OBCs	EWS	VH	HH	OH	Other forms of disability	
Executive / Officers/ etc.	902	165	55	214	—	—	—	15	2	
Non-Executive / Non-Officers/ etc.	139	18	2	18	—	—	—	—	—	
Total	1041	183	57	232	—	—	—	15	2	

9.1.3 Bharat Sanchar Nigam Limited (BSNL)

9.1.3.1 Benefits for Differently Abled Persons:

The Schemes, which are followed in the BSNL for the benefit of Differently Abled Persons, are given below:

- Reservation (@ 4% of vacancies in Cadre) for Persons with Disability in Direct Recruitment in terms of RPwD Act, 2016.
- Exempting Differently Abled Employees and also employees who are care giver of Disabled child from routine / rotational transfers within the Administrative Constraints.
- Provision for payment of Transport Allowance at double the normal rate to Differently Abled Employees.
- Rate of Transport Allowance to Blind or orthopedically handicapped employees shall in no case be less than 1000/-.
- Special allowance for child care for women employees with disabilities @ Rs. 1000 per month per child maximum for two children till the child attains two years.
- Financial Assistance to handicapped /mentally retarded children of employees for transport/hostel subsidy is given as below:
 - (i) Rs. 150/- per month per child in 'A' Cities
 - (ii) Rs. 100/- per month per child in other Cities and areas
- Transport charge / hostel subsidy will also be available at the same rule to Differently Abled Children studying in recognized colleges.
- Friendly workplace for Differently Abled Employees with provision of ramp/railings to allow their safe and smooth entry/exit and washroom accessible with wheelchair etc.
- Work from Home facility has been allowed to differently abled persons during lockdown period which is still continuing.

9.1.3.2 SC/ST Employees:

The Schemes, which are followed in the BSNL for the benefit of the SC/ST employees, are given below

- Reservation in recruitment and promotion to SC/ST candidates is as per Gol policy on Reservation.
- Concessions and Relaxations are given to SC / ST employees as per Department of Personnel and Training guidelines.
- Scheme of pre-recruitment and pre-promotion training is given to SC / ST candidates.
- Book Award is granted to school going children of the employees. In the Book Award 15 % marks relaxation is allowed for the wards of SC / ST employee.
- Scholarships given to the wards of employees by BSNL, in which 10% marks relaxation is allowed for the wards of SC / ST employees.

- SCT Cell is setup in all Circles for taking care of issues related SC / ST employees.

9.1.3.3 OBC Employees:

The Schemes followed in the BSNL for the benefit of the OBC employees, are given below:

- Guidelines are scrupulously followed on reservation policies on OBCs in direct recruitment issued by Government of India from time to time and BSNL is providing all the concessions and relaxations for OBCs as per Department of Personnel and Training guidelines.
- Liaison Officer for OBC is already functioning and looking into the complaints and redressal of the grievances of OBC employees.
- Scholarships are given to the wards of employees by BSNL, in which a relaxation of 10% marks allowed for the wards of OBC category.
- Book award are granted to school going children of the employees who have secured 75% or more marks in the last annual examination. In the Book award 10% marks relaxation is allowed for the wards of employees to OBC category.

Representation SCs / STs / OBCs /EWS / PWDs (As on 01.01.2021)									
Group	Total Employees	SCs	STs	OBCs	EWS	VH	HH	OH	Other forms of disability
Executive/ Officers / etc.	30289	6101	2205	8144	—	3	37	611	—
Non-Executive/ Non-Officers/etc.	34739	7288	2237	5129	—	7	11	263	—
Total	65028	13389	4442	13273	—	10	48	874	—

9.1.4 Indian Telephone Industries Ltd. (ITI Ltd.)

9.1.4.1 Schemes for the benefit of Differently Abled Persons:

- Differently abled employees who are residing in the township are given special allowance at the rate of 5% of Basic pay subject to maximum of Rs.75/- per month Those employees who are not residing in Company's township but are utilizing Company's Transport for commuting between residence to factory are given special allowance at the rate of 5% of Basic Pay subject to maximum of Rs.100/- per month.
- Differently abled employees are permitted 10 minutes' grace time to Punch in and Punch Out for marking their attendance at the commencement and closure of shift respectively
- Differently abled employees are allotted quarters on out of turn basis
- As per the government directive, ITI has been maintaining 4% reservation for PwD

in recruitment and the reservation in promotion has also been maintained wherever applicable.

- For PwD candidates, the Company has been relaxing 10 years in age in recruitment for Group C and D posts and 5 years in case of Group A & B posts

9.1.4.2 Schemes for the benefit of SC/ST Employees:

- Exempted from payment of application / examination fee
- Relaxation in age by 5 years in recruitment
- Concessions in qualifying marks
- Reservation in recruitment and promotion as per Presidential Directives.
- Out of turn allotment of quarters
- Scholarship to the children of SC/ST employees

9.1.4.3 Schemes for the benefit of OBC Employees:

- Reservation in recruitment as per prescribed government guidelines

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021)									
Group	Total Employees	SCs	STs	OBCs	EWS	VH	HH	OH	Other forms of disability
Executive / Officers/ etc.	2192	333	55	427	1	4	—	19	—
Non-Executive / Non-Officers/ etc.	718	159	10	225	—	—	—	6	—
Total	2910	492	65	652	1	4	—	25	—

9.1.5 Mahanagar Telephone Nigam Ltd. (MTNL)

The provisions for reservation for PwD as per Government of India Rules, have been made in recruitment of officers in various streams of MTNL. Pre-recruitment training is provided to SC/ST candidates in departmental examination. MTNL is giving a grant of Rs. 60,000/- to SC/ST Employees Welfare Association in Delhi for celebrating the birth anniversary of Dr. B.R. Ambedkar. Similarly, a grant of Rs. 60,000/- is being given to SC/ST Employees Welfare Associations in Mumbai to commemorate the death anniversary of Dr. B.R. Ambedkar.

In MTNL all the employees including SC/ST category employees are compulsorily provided pre-promotion training in case of financial upgradation of scale from E-2 level upto E-7 level.

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021)									
Group	Total Employees	SCs	STs	OBCs	EWS	VH	HH	OH	Other forms of disability
Executive / Officers/ etc.	1258	246	68	225	—	—	1	16	—
Non-Executive / Non-Officers/ etc.	2715	664	56	142	—	—	—	5	—
Total	3973	910	124	367	—	—	1	21	—

9.1.6 Telecommunications India Consultants India Limited (TCIL)

9.1.6.1 Schemes for the benefit of Differently Abled Persons:

- Concessions in service conditions are admissible to all Differently Abled employees as per guidelines.
- Transport allowance at double the normal rate is given to Differently Abled employees as per government guidelines.
- No physically disabled employee is posted in remote areas where hardship conditions are involved. Their postings/transfers are considered sympathetically.
- The cases/representations/grievances of disabled persons if any, are considered favorably.
- Special facilities like separate lift for disabled, stair chair at reception is available for their comfort and convenience.
- During COVID-19 period, Persons with Disabilities were allowed to work from home except those whose presence was required were called on roster basis on alternate days.

9.1.6.2 Schemes for the benefit of SC/ST/OBC Employees:

- Reservation guidelines are followed for SC/ST/OBCs for all cadres/posts in Direct recruitment which includes relaxation in age and % of marks in educational qualifications, besides reservation of vacancies for SC/ST/OBC candidates
- Travelling Allowance is also paid to the candidates called for interview
- The representation cases of SC/ST/OBC candidates are considered sympathetically as and when recruited and are put up with positive outlook in order to meet their expectations subject to administrative constraints
- For monitoring and implementation of reservation policy, a Liaison Officer is appointed, so that the concerned employees can forward their representation/ grievances to Liaison officer besides HR Division

- Training programs are organized from time to time.
- SC/ST/OBC Representative(s) is included in Interview Selection Board and Departmental Promotion Committee for recruitment and promotions to safeguard the interests of reserved candidates
- TCIL has executed various programmes including Welfare and Socio-Economic Development of SC/ST/OBC and others under CSR schemes
- Keeping in view the reservation guidelines, if sufficient number of SC/ST/OBCs is not filled up through Direct Recruitment, the steps are being taken continuously by TCIL to clear the backlog through “Special Recruitment Drive”
- Extended zone of consideration for SC/ST candidates for “Seniority-cum-Fitness” based promotion shall be “five times the number of vacancies”

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021)									
Group	Total Employees	SCs	STs	OBCs	EWS	VH	HH	OH	Other forms of disability
Executive / Officers/ etc.	379	60	20	56	—	3	—	—	—
Non-Executive / Non-Officers/ etc.	414	64	7	88	—	—	1	3	—
Total	793	124	27	144	—	3	1	3	—

9.1.7 Bharat Broadband Network Limited (BBNL)

Representation of SCs/STs/OBCs/EWS/PwDs (As on 01/01/2021)									
Group	Total Employees	SCs	STs	OBCs	EWS	VH	HH	OH	Other forms of disability
Executive / Officers/ etc.	16	3	0	3	—	1	—	1	—
Non-Executive / Non-Officers/ etc.	—	—	—	—	—	—	—	—	—
Total	16	3	0	3	—	1	—	1	—

9.2 EMPOWERMENT OF WOMEN

In accordance with the commitment of the Government to achieve the goals of gender mainstreaming and gender justice laid down in the National Policy for Empowerment of Women, certain steps have been taken by the DoT and the Public Sector Enterprises under its administrative control.

The DoT is effectively implementing the extant law on prevention of sexual harassment of women at work place in all its units. In pursuance of the relevant and extant Act, it has setup a committee

on the sexual harassment of women, headed by a lady officer.

The steps taken for empowerment of women by various entities of the Department are given below:

9.2.1 Bharat Sanchar Nigam Limited (BSNL)

In respect of schemes for the benefit of Women, the following schemes are existing in BSNL.

- Maternity leave of 180 days is given to all women employees.
- Child Care Leave as per the provisions of DOP&T OM No. 13018/2/2008-Estt. (L) dated 11.09.2008 is available to women employees.
- Special allowance for Child Care for Women employees with disabilities @ Rs. 1,000/- per month per child maximum for two children till the child attains two years.
- Grant of Child Adoption leaves of 180 days to female BSNL employees and extension of the facility of Paternity leave to adoptive fathers.

Total number of women employees as on 31.12.2021 (As per ERP data base)

Group	Number of employees	Women Employees
Executive	29,835	4,590
Non-Executive	33,095	7,340
Total	62,930	11,930

9.2.2 Mahanagar Telephone Nigam Limited (MTNL)

Manpower strength and the number of women employees as 30.09.2021 is as follows:

Group	Total Working strength	Women
A	218	25
B	1013	185
C	1602	317
D	958	228
TSM	3	0
Total	3794	755

MTNL has always endeavoured towards women participation in the Organization and the Nation Building. In addition, MTNL has also taken several steps towards furthering empowerment of women employees. A few of those are enumerated below:

- Special care has been taken in case of female employee working in night shift and they are provided with rest rooms/ dormitory. Night Shift Allowance is also paid to them. Night Shifts are organized in such a way that the woman employees do not have to travel at late nights.
- In order to redress the grievance relating to sexual harassment at work place, Sexual Harassment Complaint Committee has been constituted at Unit level as well as in Corporate Office.
- The service conditions are uniform and there is no gender bias.
- Maternity/Paternity leave is also available to employees.
- Child Care Leave is provided for a maximum period of two years (i.e. 730 days) with pay upto 3 months and without pay upto 2 years inclusive of 3 months with pay.
- Creche facility has also been provided for women employees with infants.
- Special Grant is being sanctioned on an annual basis for MTNL Women Welfare Organization, which in turn provides vocational training to kith and kin of working as well as retired/deceased employees.

9.2.3 Telecommunications Consultants India Limited (TCIL)

Schemes for Benefit of Women in TCIL are,

- TCIL employees strength as on 31.03.2021 is 848 out of which 112 are females.
- Initiatives for women empowerment. Equal opportunities are provided to all women workforce for skill up-gradation and career progression at all levels so as to improve their participation and contribution to the growth of the company.
- Competency mapping is done at various levels and pool of women employees are identified who can take up leadership roles. Succession planning has been introduced and women employees are being identified for taking up lead roles in the organization. Job rotation ensures that women and men have equal exposure to all the functions of the company.
- TCIL is an equal opportunity provider and no discrimination is done at time of recruitment. In various committees of the organization female representatives are adequately present. Leaves like Maternity, abortion are in place. Late hour transportation for all employees, wherever necessary is facilitated. It is ensured that proper water, sanitation and hygiene facilities are maintained at all locations. TCIL promotes structured trainings for skill upgrading at various levels, for all employees. Regular talks on various issues affecting women, like health and safety, work life balance and sexual harassment at workplace are conducted.

DEPARTMENT OF TELECOMMUNICATIONS

- TCIL has in place ICC (Internal Complaints Committee) as per the guidelines of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013. Various programs and workshops on Sexual Harassment of Women at Workplace have been organized for TCIL employees.
- International Women's day was organized on 8th March, 2021 at TCIL Bhawan with fervor in which Women empowerment talks were organized including talks by Brahmakumari sansthan on "Empowerment of Women through Spirituality".

9.2.4 Centre for Development of Telematics (C-DOT)

C-DOT's management has always been sensitive towards gender issues and has constantly worked towards building a gender-neutral environment whereby the employees can grow and work freely.. Existing policies are:

- All female employees are allowed to avail up to 180 days maternity leave & up to 90 days leaves subsequent to that (270 days inclusive of 180 days maternity leave). For miscarriage/abortion, leave of a total of 45 days in the entire service span is permissible.
- Child Care leave is also granted to eligible female employees on their applying for the same, as per rules.
- C-DOT offers accommodation and transport benefits to all its women employees with different options that maybe availed as per individual needs. This ensures the safety and security of all women employees in the company.
- Reimbursement for residential telephone expenses is admissible to 100% of the women employees.
- Career growth opportunities are available to women employees in C-DOT. In the current financial year, of the total employees promoted to higher grades, 26% of them were women.
- As per the directives of Supreme Court of India, C-DOT, both at Delhi and Bengaluru, has an independent Internal Complaint Committee, to redress the grievances relating to sexual harassment at workplace, raised by the women employee, in case they suffer/observe any instance of the same.



Laying submarine cable





CHAPTER 10

AUDIT OBSERVATIONS OF C & AG

Audit Observations of C & AG

Status of C&AG Audit Paras pending as on 30th November 2021:

S. No.	Year	Report No.	No. of Paras/ PAC Reports on which ATNs have been submitted to PAC after vetting by Audit (from April 2021)	Details of the CAG Paras* / PAC Report** on which ATNs are pending as on 30/11/2021			
				No. of ATNs not sent by the Ministry even for the first time.	No. of ATNs sent but returned with observation and Audit is awaiting their resubmission by the Ministry	No. of ATNs which have been finally vetted by audit but have not been submitted by the Ministry to PAC	No. of ATNs replied by Department to Audit for vetting
1.	2016-17	4 of 2016	Nil	Nil	Nil	Nil	30
2.	2016-17	29 of 2016	01	Nil	Nil	Nil	Nil
3.	2017-18	11 of 2017	Nil	Nil	01	05	Nil
4.	2017-18	35 of 2017	Nil	Nil	01	04	Nil
5.	2018-19	21 of 2018	Nil	Nil	01	Nil	Nil
	Total		01	Nil	03	09	30

* Total C&AG Audit Paras of DoT pending as on 30/11/2021 = 42 [3 (Under Modification) + 30 (Sent to Audit) + 09 (Sent for Copy)]

** Six PAC paras from following PAC Report were settled during 01/04/2021 to 30/11/2021:

S. No	PAC Report No	Recommendation No.
1.	83(16 th (Lok Sabha)	7, 8, 9
2	88(16 th (Lok Sabha)	1, 5, 10



Cell on Balloon





Chapter 11

Annexures

I	Organisation Chart
II	Statistical Supplement
	<ul style="list-style-type: none">• Telephone per 100 Population-Urban/Rural (Tele-density)• Number of Telephones

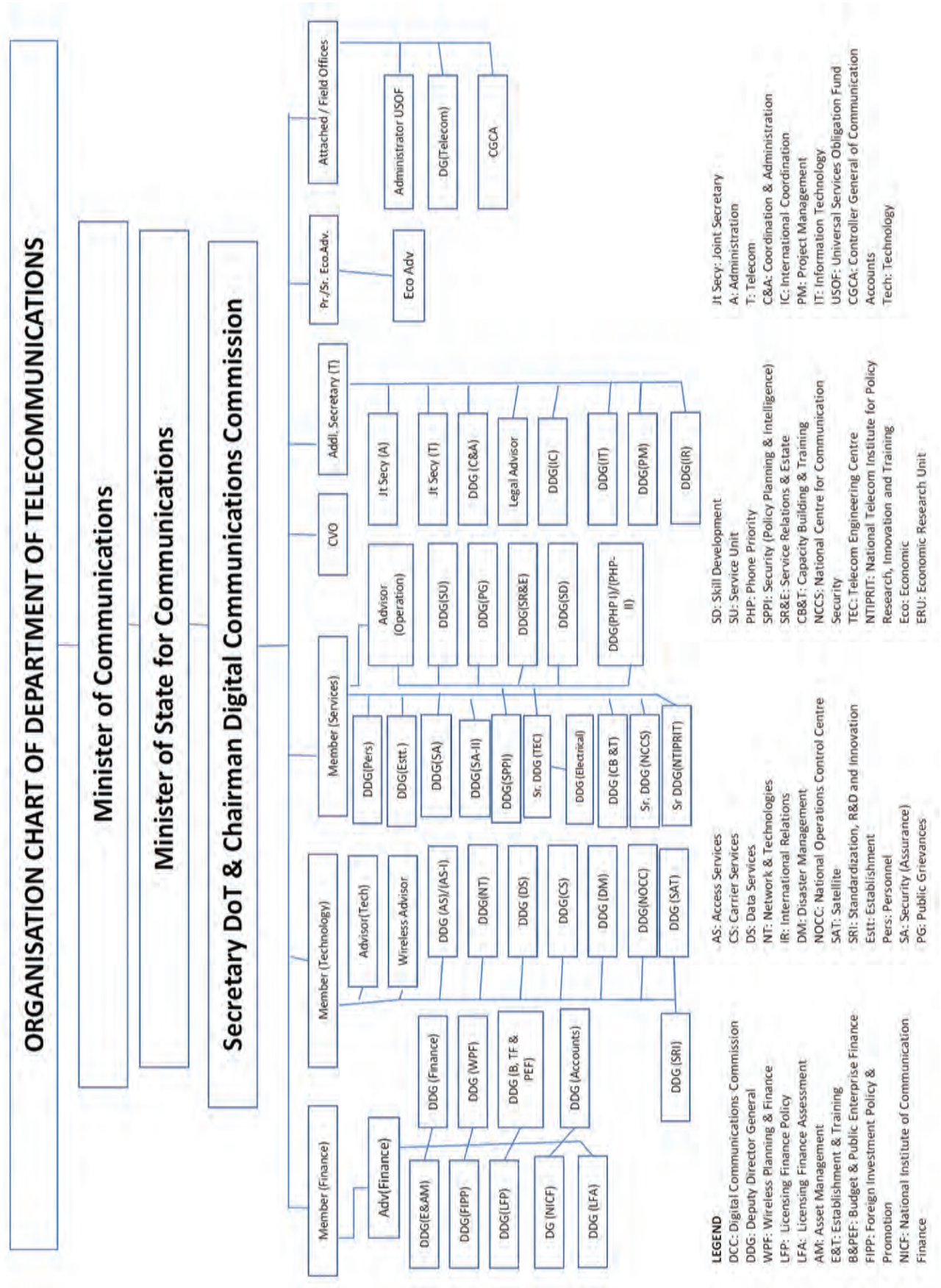


Table -1

Sl.No.	Service Area	Telephone per 100 Population-Urban/Rural (Tele-density) as on 30th November 2020 and 2021.													
		Tele-Density						Telephones						% of Rural Phones to Overall Phones	
		Overall		Urban		Rural		Overall		Urban		Rural		November'20	November'21
November'20	November'21	November'20	November'21	November'20	November'21	November'20	November'21	November'20	November'21	November'20	November'21	November'20	November'21		
1	ANDHRA PRADESH	98.31	97.00	124.91	121.97	80.76	80.07	88066774	88066774	44886770	44753352	43967733	43313422	49.48%	49.18%
2	ASSAM	68.66	69.82	167.16	169.89	50.88	51.35	23994397	24572589	89313556	92405059	15063041	15332080	62.78%	62.40%
3	BIHAR ¹	52.71	53.54	114.67	117.72	41.47	41.80	84854105	87430717	28351626	29718221	56502479	57712496	66.59%	66.01%
4	GUJARAT	97.05	97.39	121.31	121.47	74.59	74.60	68538581	69710835	41187675	42274856	27350906	27435979	39.91%	39.36%
5	HARYANA	94.35	94.70	129.70	128.71	70.01	70.72	27720499	28178973	15537823	15839745	12182676	12339228	43.95%	43.79%
6	HIMACHAL PRADESH	149.90	142.49	474.25	460.64	112.84	106.04	11065743	10575823	3590107	3514705	7475636	7061118	67.56%	66.77%
7	JAMMU & KASHMIR	86.55	87.19	153.07	154.45	58.11	58.06	11839826	12014676	6271418	6431182	5568408	5583494	47.03%	46.47%
8	KARNATAKA	104.20	102.89	146.20	143.88	72.09	70.93	69517445	69103277	42262175	42336475	27255270	26766802	39.21%	38.73%
9	KERALA	129.00	127.98	98.16	97.24	202.73	209.80	45810740	45642345	24576923	25209605	21233817	20432740	46.35%	44.77%
10	MADHYA PRADESH ²	68.14	69.85	131.87	135.77	43.19	43.83	77427971	80357362	42162844	44708288	35265127	36149074	45.55%	44.99%
11	MAHARASHTRA	94.09	95.34	144.60	147.67	66.83	67.18	94267349	95694132	50773240	51859301	43494109	43834831	46.14%	45.81%
12	NORTH-EAST ³	79.29	78.50	116.54	116.19	60.66	59.12	12233415	12224062	5996097	6143096	6237318	6080966	50.99%	49.75%
13	ORISSA	76.28	76.42	144.29	143.36	60.89	61.08	33555904	33726123	11715197	11796012	21840707	21930111	65.09%	65.02%
14	PUNJAB	126.15	122.97	192.80	187.22	75.36	73.28	39716331	38985182	26253191	25886223	13463140	13098959	33.90%	33.60%
15	RAJASTHAN	82.95	81.99	144.27	141.21	61.07	60.70	65555304	65535189	29880264	29839526	35575040	35695663	54.27%	54.47%
16	TAMIL NADU ⁴	105.73	107.08	141.30	141.86	65.59	67.11	82341568	83708695	58349019	59298375	23992549	24410320	29.14%	29.16%
17	UTTAR PRADESH - [East]	66.73	68.73	120.80	124.16	49.44	50.85	98508133	102368426	37704485	39424087	60803648	62944339	61.72%	61.49%
18	UTTAR PRADESH - [West] ⁵	66.74	70.13	110.55	118.53	53.63	55.48	55021181	57880543	20990995	22729981	29678239	30946153	47.36%	47.27%
19	WEST BENGAL ⁶	161.57	148.23	#	#	#	#	26834342	25243605	24982329	23627615	1852013	1615990	6.90%	6.40%
20	KOLKATA	274.75	269.57	#	#	#	#	56260411	56251152	544982905	544982905	2277506	1752458	4.05%	3.12%
21	DELHI	151.44	145.26	#	#	#	#	38645497	38295927	37357900	37075360	1287597	1220567	3.33%	3.19%
22	MUMBAI	86.55	86.89	139.01	138.79	59.08	59.31	1175224141	1191026384	648826996	660219032	530807352	530807352	44.79%	44.57%

Note: Tele-density is calculated for UP(E) & UP(W) jointly due to non availability of separate population data for UP(E&W). 1. Includes Jharkhand, 2. Includes Chhattisgarh, 3. Includes North East (A&N), 4. Includes A&N Islands, 5. # Rural-Urban break up of population for Kolkata, Delhi and Mumbai service areas is not available. **Reliance Jio figures are included from the month of October 2016.**

Source: Population Projections for India & States 2001-2026, O/o the Registrar General of India and subscribers' data from TSPs.

Table - 2

Sl.No.	Service Area	Wireline Phones						Wireless Phones						TOTAL TELEPHONES	
		TOTAL			Private Operators			TOTAL			PSUs			Private Operators	
		November '20	November '21	November '20	November '21	November '20	November '21	November '20	November '21	November '20	November '21	November '20	November '21	November '20	November '21
1	ANDHRA PRADESH	1380429	1833671	639750	683522	740679	1150149	87474074	86233103	9676241	9182467	77797833	77050636	88854503	88066774
2	ASSAM	122407	185824	85726	102769	36681	83055	23871990	24386765	2935442	3127340	20936548	21259425	23994397	24572589
3	BIHAR ¹	204957	388971	134050	178936	70907	210035	84649148	87041746	5930172	5453955	78718976	81587791	84854105	87430717
4	GUJARAT	964000	1020566	524113	436908	439887	583658	67574581	68690769	6111937	5558866	61462644	63131403	68538581	69710835
5	HARYANA	231304	318850	141593	182355	89711	136495	27489195	27860123	5061105	4962800	22428090	22897323	27720499	28178973
6	HIMACHAL PRADESH	89961	114626	81131	88334	8830	26292	10975782	10461197	3004030	2710918	7971732	7750279	11065743	10575823
7	JAMMU & KASHMIR	153165	261993	95714	105788	57451	156205	11686661	11752683	1262324	1313912	10424337	10438771	11839826	12014676
8	KARNATAKA	2174466	2491995	792957	870560	1381509	1621435	67342979	66611282	7257169	6953582	60085810	59657700	69517445	69103277
9	KERALA	1314199	1301020	1168981	1069835	145218	231185	44496541	44341325	10958555	10675401	33537986	33665924	45810740	45642345
10	MADHYA PRADESH ²	682903	941463	278813	291409	404090	650054	76745068	79415899	6338735	5967668	70406333	73448231	77427971	80357362
11	MAHARASHTRA	1336200	1363597	849237	749978	486963	613619	92931149	94330535	6900110	6594366	86031039	87736169	94267349	95694132
12	NORTH-EAST ³	97749	148699	74363	81557	23386	67142	12135666	12075363	1366299	1350345	10769367	10725018	12233415	12224062
13	ORISSA	203292	299019	157117	193146	46175	105873	33352612	33427104	6372565	6246307	26980047	27180797	33555904	33726123
14	PUNJAB	687059	797070	250991	258750	436068	538320	39029272	38188112	5834048	5307331	33195224	32880781	39716331	38985182
15	RAJASTHAN	466324	645661	276685	301005	189639	344656	65088980	64889528	6360921	6178117	58728059	58711411	65555304	65535189
16	TAMIL NADU ⁴	1942951	2271600	991348	1036242	951603	1235358	80398617	81437095	11203679	9932629	69194938	71504466	82341568	83708695
17	UTTAR PRADESH - [East]	379088	562920	177400	189592	201688	373328	98129045	101805506	11644315	11120915	86484730	90684591	98508133	102368426
18	UTTAR PRADESH - [West] ⁵	296302	537663	161016	203375	135286	334288	62364594	64922314	5878650	5651015	56485944	59271299	62660896	65459977
19	WEST BENGAL ⁶	238220	346007	200681	229424	37539	116583	54782961	57534536	2373244	2661598	52409717	54872938	55021181	57880543
20	KOLKATTA	663823	844354	342966	394976	320857	449378	26170519	24399251	2451066	2236564	23719453	22162687	26834342	25243605
21	DELHI	3413814	3767142	1344543	1295076	2069271	2472066	52846597	52484010	2170862	2154158	50675735	50329852	56260411	56251152
22	MUMBAI	3027107	3090507	1638825	1475547	1388282	1614960	35618390	35205420	1153213	1106687	34465177	34098733	38645497	38295927
	ALL-INDIA	20069720	23533218	10408000	10419084	9661720	13114134	1155154421	1167493166	122244682	116446941	1032909739	1051046225	1175224141	1191026384

Note: 1. Includes Jharkhand, 2. Includes Chhattisgarh, 3. Includes North East & II, 4. Includes Chennai, 5. Includes Uttarakhand and 6. Includes A&N Islands. Reliance Jio figures are included from the month of October 2016. Source: Population Projections for India & States 2001-2026, O/o the Registrar General of India and subscribers' data from TSPs



Department of Telecommunications
Ministry of Communications
Government of India
New Delhi